THE FAR EASTERN REVIEW
COMMERCE :-: ENGINEERING :-: FINANCE

VOL. XIV SHANGHAI, FEBRUARY, 1918 No. 2

The Chinese Government Railway System in 1917

Profits of Chinese Railways in Last Year Will Approximate a Nominal Total of $17,000,000

[BY MR. JOHN EARL BAKER, ADVISER TO THE MINISTRY OF COMMUNICATIONS, PEKING]

The close of the year just past has not been accompanied by reflections flattering to China nor comforting to Chinese who have a filial regard for their mother country. Civil war between the two great divisions of the land, brigandage a flourishing occupation, the currency system demoralized, floods in every river basin,—the retrospect cannot be otherwise than sad. As a publicist very recently said, "No wonder that 1917 went out with a groan."

But can nothing good be said as the clods fall on the coffin of the old year? Have all avenues of life, all departments of national endeavor succumbed to the general chaos? Have there been no forward forces able at some points to push aside opposing obstacles and make progress for some institution or industry? The answer is important to China and her well wishers. The following paragraphs will consider this question as it applies to the Government Railway System. The answer will not be given,—cannot be given. So much depends upon the point of view. All that can be done is to state the facts that are at hand, suggest points of view, and let the reader take his choice of pessimism or optimism.

Unfortunately for this review of the year the facts at hand are somewhat meager. In a business covered by one roof even within the confines of a single city it may be and generally is possible within a few days after the close of the year to state the results of the concern's activities during the year. But with such a complex organization as a railway needs, and extending over hundreds of kilometers of line, much more time is required. For example: Engineers must have time to assemble their data, make computations, and post their own records. Then their reports must travel to the next superior, and by him be scrutinized. Perhaps some items are in doubt. Such doubts must be cleared up before the data can be merged with those from other similar jurisdictions. And so the individual items proceed from one step in the hierarchy of the organization to another, losing their individuality, but each influencing the final result. Hence it is the practice in countries with a longer railway history than China's to allow some three months for the closing of the accounts for any month. When the fact is considered that many of the shorter Chinese lines have no rail connection with Peking, and that military disturbances have been frequent, it is not strange that reports from some of these are five or six months back of the current data. Without accurate data, it is a rash undertaking to make an irrevocable decision as to the year's results on a system whose extremities are so far apart as Kirin and Canton, Fengchen and Changsha, to say nothing of the projected lines upon which reconnaisance and survey work is under way. It is precisely in these missing months that the pessimists find their arguments.

It will be several months before the railway earnings in 1917 can be stated accurately. But in the meantime estimates may be made, and to make such estimates a few facts like those following may be useful.

Beginning January 1, 1915, the new uniform classification of accounts went into effect. Because of the lack of uniformity in the accounts of the several lines prior to 1915, it is unsafe to draw comparisons with those earlier years. But it is well known that earnings have been steadily climbing, and the rate of growth between 1915 and 1916 may be measured fairly accurately. Operating revenues—that is, earnings from handling passengers, troops, goods, cattle, parcels, etc.—in 1915 were $57,062,000, to use round numbers. In 1916 they were $62,761,000,—a gain of more than five and a half million dollars. A similar gain in 1917 would result in a figure above $68,000,000. Returns for the first six months of 1917 are complete, although subject to future adjustments and corrections of a minor nature. The operating revenues of the system for this period reached an aggregate of $33,820,880. Manifestly if the second half of the year did as well as the first half, total operating revenue would reach the high total for the year, of over $67,000,000. The warrant is not weak for assuming that the second half of the year might duplicate the record of the first, disregarding the disasters which occurred.

Chinese Government Railways Operating Revenue

	Six Months' Period Based on Monthly Reports		*Years, from Annual Reports*
	FIRST	SECOND	
1917	$33,820,880		
1916	31,036,261	$31,732,784	$62,763,868
1915	28,045,620	29,016,739	57,062,359

As the basis is different in each case the figure for the year will not agree exactly with the sum of the two half years.

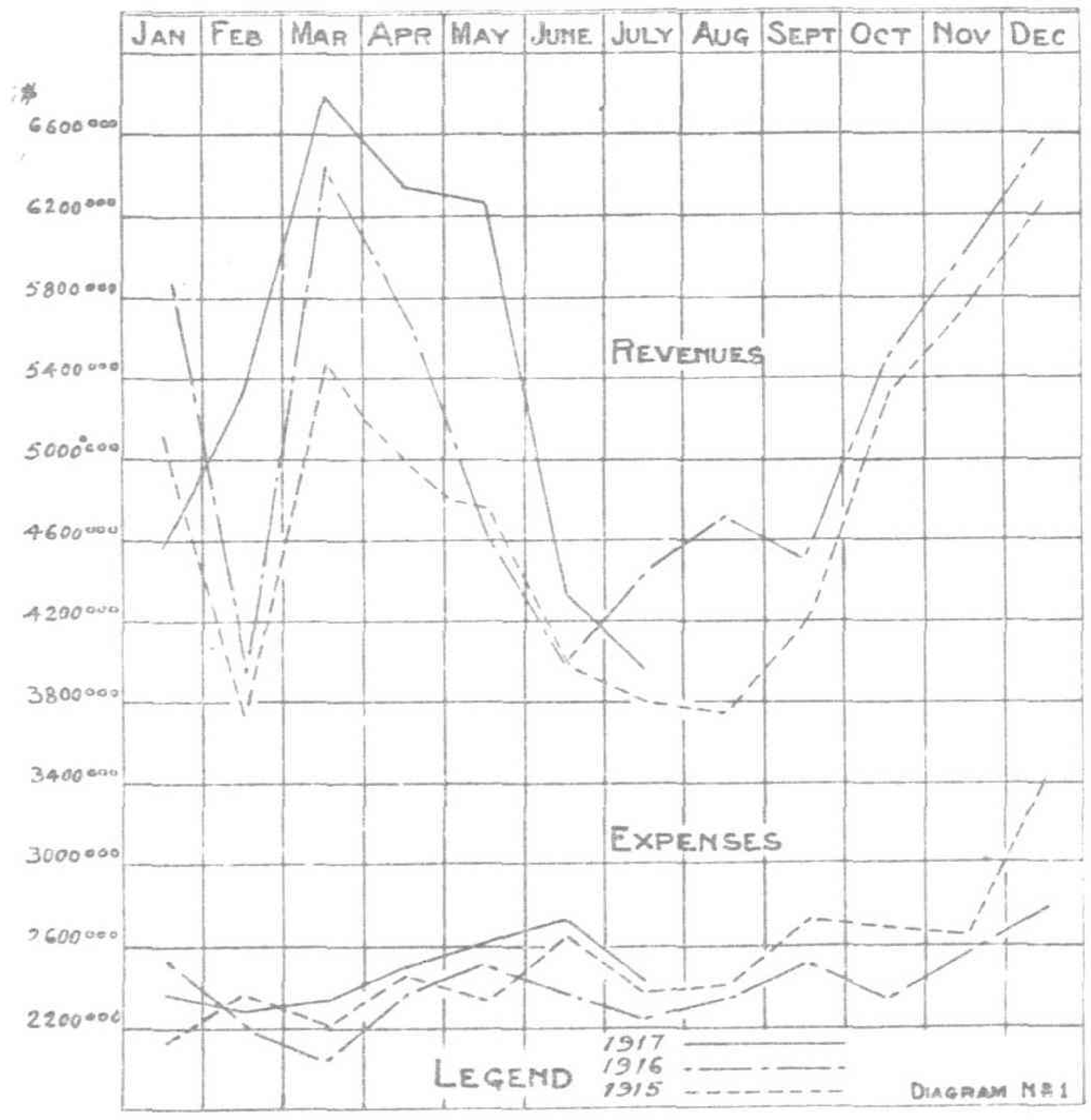
In 1915, the second half year's revenues exceeded those of the first year by nearly a million dollars. In 1916 the second six months' exceeded the first's, by nearly $700,000. Ordinarily then, the inference would follow that in 1917 the second half year would exceed the first in operating revenue.

But what of floods and troop movements? Has there not been a setback of millions instead of gain? These disturbances occurred almost entirely during the latter half of the year, for which returns are incomplete. On July 27, floods broke the line of the Peking-Hankow, and through traffic could not be resumed until October 29, three months later. On August 8, the Tientsin-Pukow suffered similarly, and remained closed to through traffic until November 26. On the latter line, shift was made to keep up passenger traffic, by means of a launch running from the International Bridge in Tientsin down the river to the river terminus of a short branch line. By this means, also, through passenger service from Peking to Hankow was later established,—using the new Lung-Hai line as a connection. But through goods traffic was effectively stopped on both these lines for over three months. In addition, troop movements in connection with the anti-monarchy maneuvers, and the subsequent disaffection of the South resulted in a serious crippling of the freight service by reason of lack of equipment. While the two lines mentioned were the principal sufferers from these two causes, all their connections naturally were affected also. The revenues of the Peking-Hankow fell off more than a million dollars in August and undoubtedly September and October figures will show similar results. However, the Tientsin-Pukow returns for August were scarcely lower than those for the same month in 1916. It will be remembered that only the Tientsin terminal was cut off. The Peking-Mukden, which was the principal line affected by the anti-monarchy maneuvers in July, actually showed an increase of $36,000 for that month. (How much of the revenues of this month the railways will be able to collect from the Ministry of War is another matter.)

The losses due to the floods on the Peking-Hankow are serious. For the three months of interruption they amount, perhaps, to over three million dollars. But this leaves a very comfortable gain for the system year if estimates of the normal revenues at sixty-eight millions be allowed to stand. The following diagram may assist in guaging the reliability of such estimates:

CHINESE GOVERNMENT RAILWAYS

Operating Revenues Expenses by Months, for 1915, 1916, 1917

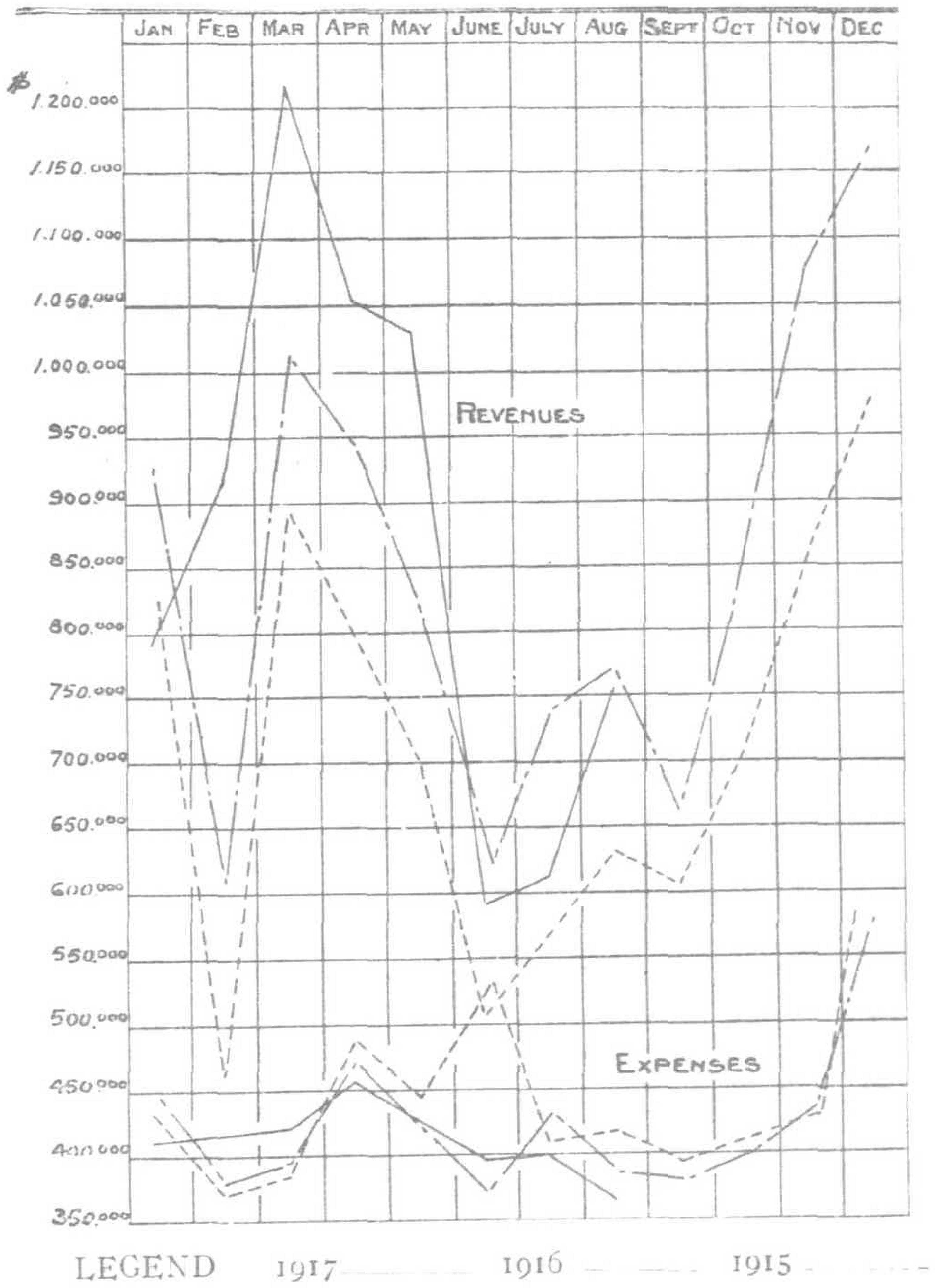


From the above diagram it is apparent that there is a very well defined seasonal fluctuation in revenues. Diagrams No. 2 and No. 3, below, show the participation in this fluctuation of the two Tientsin-Pukow line and the Shanghai-Nanking line.

It may be stated as a fact that this fluctuation is almost identically the same on the Peking-Mukden, the Peking-Hankow, and the Peking-Suiyuan lines. Crop moving time leads to coal moving time. Thus autumn and winter months yield the high revenues of the year. Now the 1917 crop has been light because of drought as well as flood. The autumn months were fairly mild. How much have these facts reduced tonnage of goods carried and the willingness of people to travel? Your guess is as good as mine.

TIENTSIN-PUKOW LINE

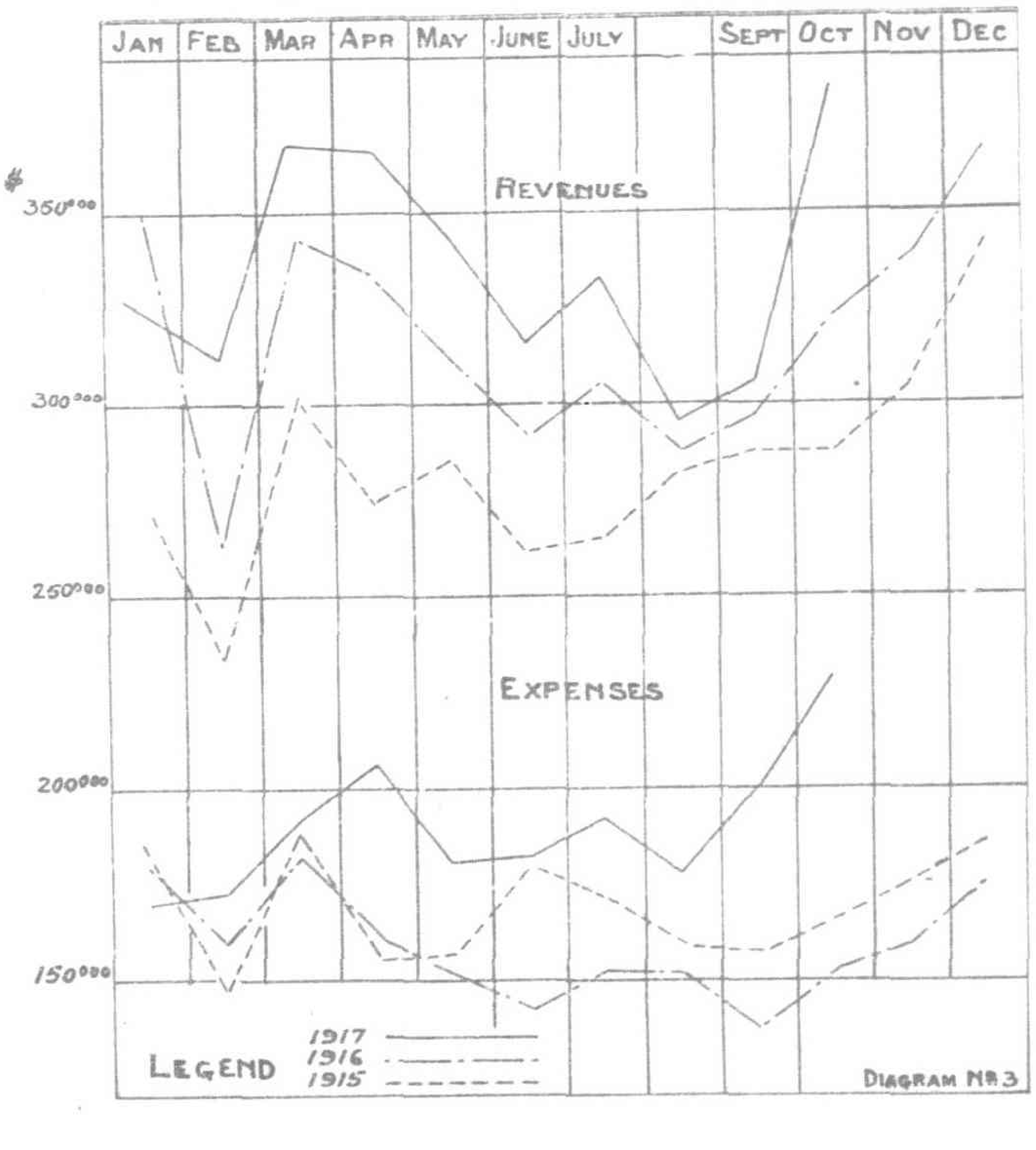
Operating Revenue Expenses, 1915, 1916, 1917



Offhand, it would seem to be a miracle if the revenues of 1917 equaled those of 1916,—what with drought, flood, and military disorder. However, from the results reported for July

SHANGHAI-NANKING LINE

Operating Revenue Expenses, 1915, 1916, 1917



and August (as indicated by Diagram No. 2), the Tientsin-Pukow line is not falling much behind its 1916 record. The flood losses at the north are probably offset by natural growth of traffic, and it has always labored under military burdens. The decreases on the Peking-Hankow are perhaps offset by the gains on other lines. On July 1, 1917, the total system had earned $2,784,000 more than in the same period in 1916, or $33,820,000 against $31,036,000, and such lines as the Peking-Mukden, the two Shanghai lines, and some of the shorter ones have kept up the same record in the later months for which reports have been received. To make the revenues of 1917 fall behind those of 1916, the last six months of 1917 must produce less than $28,943,000—nearly $5,000,000 less than during the first half of the year, and compared with $31,733,000 earned during the last six months of 1916, and $29,016,739 earned during a similar period in 1915. It is quite possible that the miracle may be achieved.

Assuming that 1917 revenues will be approximately the same as those for 1916, in what position financially does that place the Government Railway System? The answer may be found, in part, in the following table. (This table is based partly on preliminary returns and may be subject to minor corrections, but these are not likely to impair conclusions drawn from it.)

Chinese Government Railways, 1916

Name of Line	Kilometers of Line	Operating — Revenues	Operating — Expenses	Per Cent	Interest on Funded Debt	Net after Payment (a) of all Income Items
Peking-Hankow	1,316	$20,466,622 (a)	$7,027,542 (b)	34⅓	$2,320,917 (a)	$10,770,381 (b)
Peking-Mukden	965	14,809,724	5,953,576	40⅓	773,033	8,184,449
Tientsin-Pukow	1,107	10,188,976	5,067,098	50½	4,770,267	385,369
Shanghai-Nanking.. ..	327	3,818,270	1,904,015	50	1,318,358	491,444
Shanghai-Hangchow-N'po	269	1,798,504	1,444,826	80⅓	643,369	*261,076**
Peking-Suiyuan	429	3,895,780	2,317,139	59½	none	1,380,448
Cheng-Tai	243	2,184,027	1,290,367	59	653,741	174,396
Taokow-Chinghua.. ..	152	834,945	380,717	45½	380,000	nominal surplus (c)
Kaifeng-Honan	185	1,286,794	568,290	44	697,464	22,953
Kirin-Changchun	130	933,444	756,379	81	113,800 (d)	*50,000** (Est.) (c)
Chuchow-Pinghsiang ..	97	744,566	690,123	92⅔	none	51,775
Canton-Kowloon	143	794,223	829,663	104½	701,747	*787,009**
Canton-Sanshui	49	962,091	487,435	50⅔	none	388,138
Changchow-Amoy.. ..	32	45,902	72,245	150¾	none	*151,893**
Chinese Gov't Railways ..	5,444	$62,763,868	$28,789,712	46	$12,372,696	$20,599,375

* Italics indicates a debit balance.
(a) Interest on "Government Investment" has not been included in "Income Items."
(b) Decimals to nearest integer.
(c) Final corrected figures for last six months of the year, not reported.

In 1915, the sum left out of revenues after all expenses, interest, and other income charges had been paid, amounted to $9,671,000,—in round numbers. In 1916, this sum is more than double the 1915 figure, being $20,599,000. If a five per cent charge be made for the use of Government funds invested in system property, approximately $5,000,000 may be considered set aside for that purpose. Still, more than $15,000,000 remains as absolute profit, a sum treble its counterpart in 1915. The profit in 1915 would command the attention of financiers who had become interested. But there were some features in the 1915 results which did not help to arouse such an interest. For example, out of the fourteen present lines, nine did not earn sufficient to meet all their obligations in 1915. The argument could be made that the good locations for railroads seemed to be used up; that the profitable lines were merely lucky. But in 1916, five of these nine weak lines had pushed over into the paying column. Most gratifying of all, it is to see the long stretch from Tientsin to Shanghai, composed of two leading lines, able to assume full responsibility for yearly obligations. This leaves only four short, scattered lines composing only about ten per cent of the kilometrage in the system which are unable to stand alone. (See Diagram on the following page.) This result will bear comparison with the record of any other country.

The Tientsin-Pukow serves a territory essentially agricultural. The Shanghai-Nanking is in direct competition with water transportation. It has been said that rails cannot compete with water, especially in China; and in farming territory it is everywhere very difficult to work up a profitable volume of traffic. In some quarters at least, the results on these two roads had discouraged financing of projected lines through similar territory.

The Tientsin-Pukow began the year 1917 bidding fair not only to maintain the record of the previous year, but to show profits of a substantial sort. The first six months showed a total revenue of $5,665,000 compared with $4,949,000 in 1916. This increase of over $700,000 would have been safe during the latter months of the year if wagons had been available. During August and September thousands of tons of rice, barley, wheat, and other commodities were stored in the godowns or, lacking space inside, under mats at such points as Tsinan, Hsuchow, Pengpu, Pukow, and a score of less important stations. A certain mining company stood ready to offer traffic of $300,000 in excess of 1916, if assured of a regular and sufficient supply of wagons. The freight charges on all these goods would run into the millions. Meanwhile most of the equipment on the northern section was tied up in the Tientsin yard by the break in the line, and that on the southern section was commandeered by troops. It is to be hoped that shippers along this line will not become discouraged by their experience this autumn, but recognize the unusual difficulties which the railroad encountered. Nevertheless 1917 sustains the evidence of 1916 that the Tientsin-Pukow can secure enough business to make it a valuable line in a financial sense.

Similarly, the Shanghai-Nanking, as indicated in Diagram No. 3, has manifested in unmistakable terms its ability to cope with the situation. Earnings in 1917, save in January, have been consistently above those of 1916, the same as the latter were above those of 1915. The ten months whose returns are in hand show an aggregate gain over the same period in 1916 of $255,000,—being $3,367,000 in 1917 compared with $3,112,000 in 1916. Indeed, the experience of this line, together with that of the Tientsin-Pukow, leads to the conclusion that after the first few years of a railroad's operation, waterways may develop business for a properly located road rather than destroy it.

It must be admitted, however, that a considerable position of the favorable results in 1916 is due to the decline in the value of gold, thus making foreign interest payments,—all of which are specified in gold—so much less, measured in terms of the Chinese silver dollar. On the other hand, war conditions that have made gold cheap have made railway supplies from abroad dear, when obtainable. When not attainable, some substitute must be made for the foreign article. Either course increases the expense of operation.

The saving in interest is therefore considerably offset by the increase in operating expenses and accordingly, the surplus stated in 1916, after all charges for the year have been met, should be fairly close to a statement of the inherent strength of the Chinese Government Railways. The decline in the price of gold continued through 1917. This by itself would tend to make a showing of a surplus for that year even better that in 1916. Whatever the result in total, it is assured that the Shanghai-Nanking will stay in the "paying" column in 1917, and the chances are fairly even that the Tientsin-Pukow will reappear there also. If so, this means that practically all the contiguous Government line—that is, the real "system"—is sound financially in every component part. (See Diagram No. 5).

CHINESE GOVERNMENT RAILWAYS

Lines with Surplus for year after payment of fixed charges compared with lines having Deficit after payment of Fixed Charges, 1916

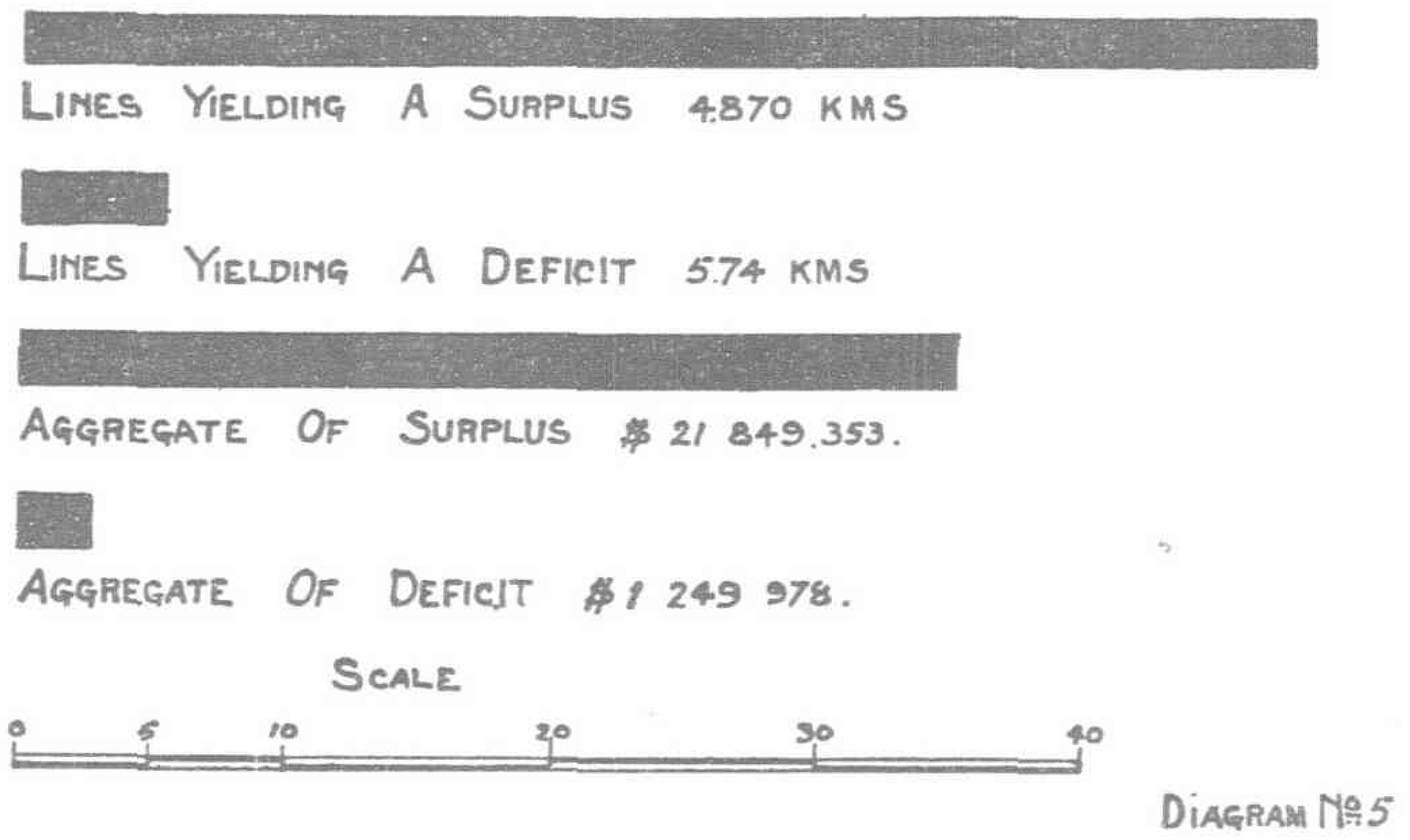


DIAGRAM No 5

Little has been said so far about operating expenses, for it has seemed that revenue was the paramount subject. Railway operation is so near to an exact science, that under normal conditions much less uncertainty attaches to that phase of the subject than to the revenue side. Given sufficient revenue, very ordinary railway management will produce a handsome surplus. With new lines, revenue is always the great problem.

The ration of operating expenses to operating revenue in 1915 was 53 per cent, a very creditable figure. In 1916 it was still lower, 46 per cent. The additional $5,700,000 of revenue in 1916 apparently added nothing to the cost of producing it, for operating expenses, instead of increasing, decreased from $30,258,000 in 1915 to $28,790,000 in 1916, a saving of $1,468,000. Judging from the monthly returns now at hand, the 1917 figures will be considerably above those for 1916,—even exceeding those for 1915. Yet the first half of the year is not the significant portion. The following table makes it apparent that it is primarily the second six months which determines what the fluctuation shall be for the year. Diagram No. 1, also, may be studied in this connection.

Chinese Government Railways Operating Expenses

	Six Months' Periods Based on Monthly Reports		*Year Based on Annual Reports*
	FIRST	SECOND	
1917	$14,709,497		
1916	13,980,549	$14,851,300	$28,789,712
1915	14,179,825	16,215,111	30,258,533

CHINESE GOVERNMENT RAILWAYS

Conventionalized Map, showing Lines with Surplus and Lines with Deficit after paying all fixed charges for the year 1916

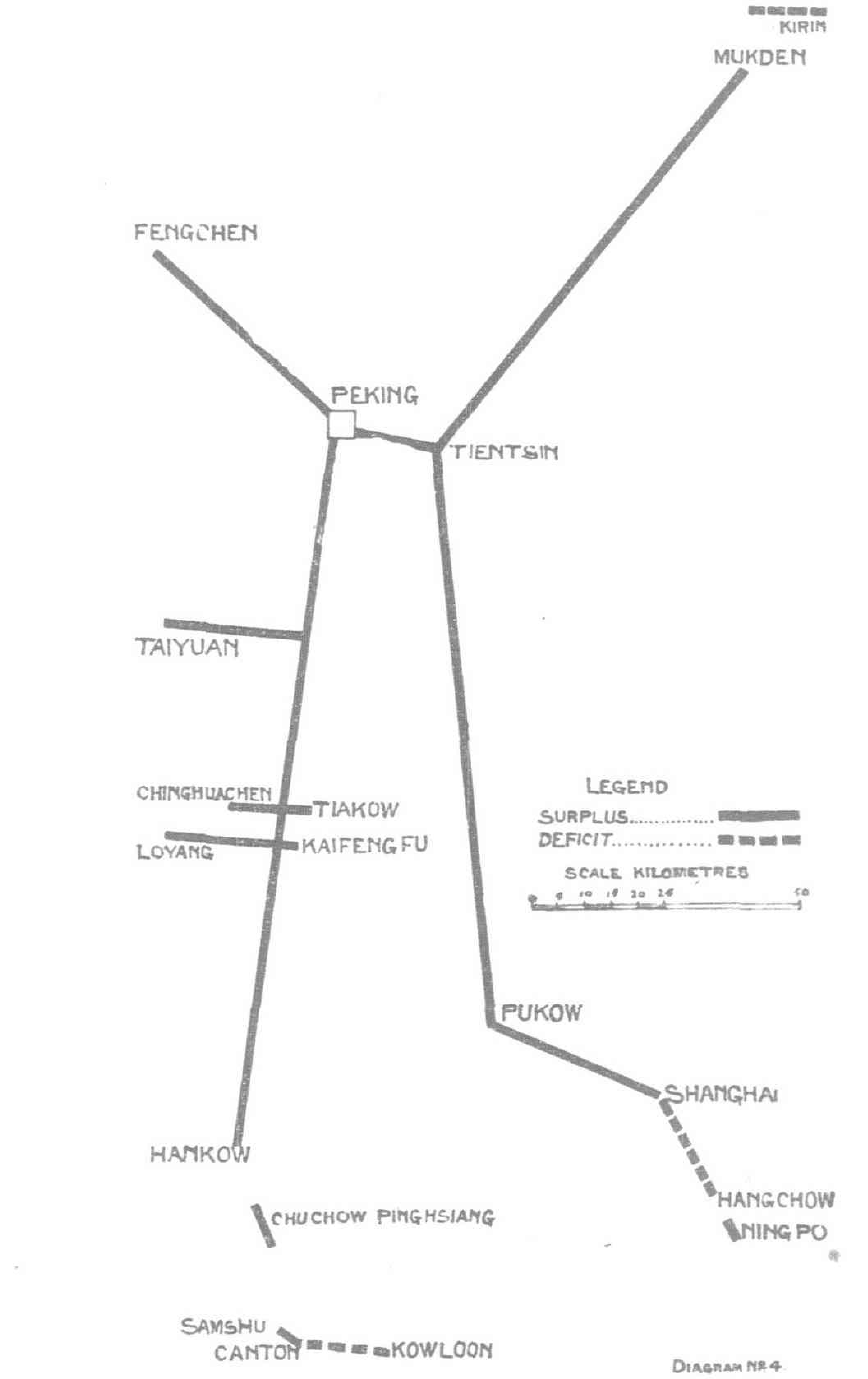


DIAGRAM No 4

Lines with a Surplus

Line	*Kiloms.*	*Surplus*
Peking-Hankow	1,316	$10,770,381
Peking-Mukden	965	8,184,449
Tientsin-Pukow	1,107	385,369
Shanghai-Nanking	327	491,444
Peking-Suiyuan	429	1,380,448
Cheng-Tai	243	174,396
Taokow-Chinghua	152	Nominal
Kaifeng-Honan	185	22,953
Chuchow-Pinghsiang	97	51,775
Canton-Samshui	49	388,138
Total	4,870	$21,849,353
Net	4,296	$20,599,375

Lines with a Deficit

Line	*Kiloms.*	*Deficit*
Shanghai-Hangchow-Ningpo	269	$261,076
Kirin-Changchun	130	50,000 (Est.)
Canton-Kowloon	143	787,009
Changchow-Amoy	32	151,893
	574	$1,249,978

Taken together, this table and Diagram 1, indicate that normal expenses in 1917, would probably amount to something less than $31,000,000. But the floods have had their effect. The additional expense caused on the Peking-Hankow is estimated at $1,000,000. On the Tientsin-Pukow, however, the additional expense will probably not be so noticeable, so probably $31,750,000 will cover all operating expenses in 1917. This is an increase over 1916 of approximately $3,000,000, and reduces the final profits of the year that much below the 1916 figure, which was over $20,000,000. It may be that the increased value of the silver dollar, measured in gold, will largely counteract this increase in operating expenses. The rate of exchange was about twelve per cent more favorabl in 1917. But even that allowance will probably result in a decrease in "surplus for the year" of about $1,500,000.

In all the computations given above, one factor has been ignored. The revenue figures are not as good as they look. From May 24 to October 16, 1917, silver was required in payment for tickets and the handling of goods to about one third of the charge, on three leading lines. Except for this restriction, notes of the Bank of China and of the Bank of Communications were accepted at par. It is true of course that a considerable portion of wages and salaries were paid in these same notes. But in the case of materials silver was required. For a time, too, Bank of China notes were redeemable at par. But, the net result is that considerable of the revenue has been collected in a unit worth as low as sixty cents at times, while most of the expenses have been paid in a unit worth one hundred cents. How much this factor will reduce the surplus for the year below the figure suggested as probable is very difficult to approximate on these meager data, and these are all that are at hand. Let each reader guess for himself. The pessimists have here a fine opportunity.

Whatever the final profit for the year nets in convertible currency, optimistic Chinese will argue something like this: We are all concerned over the current funds out of which to pay current expenses and obligations, of course. But we are fully as much concerned, and possible investors are more concerned, over the future possibilities of the Chinese Railway System. The normal revenues of the year are the best evidence that can be adduced of the hold which the railways have obtained, of the material progress of the communities they serve, and of the appreciation on the part of farmers and tradesmen of the service that the railways can render them. The way 1917 started out, a revenue of $68,000,000 would certainly have been earned if misfortune had not overtaken us. There is abundant evidence that Chinese producers are learning rapidly that the regularity, certainty, and speed of railway service is a source of profit to them. Results on the Tientsin-Pukow and the Shanghai-Nanking give assurance that lines needed for military security and political unity can be made a success commercially, and the success of the railway is not the only success. To whatever extent a railway is used, to that extent the users are benefited. If they did not profit, they would cease to patronize the line. So this increasing use of the railroad indicates an increasing well-being of the people in the territory served. That is the most valuable result of all.

Extensions Impeded

So much for operation. There are other phases of railway activity which call for attention. What of plans for extending the system? There are a great many of these, several that have been entered upon seriously. The world war has entirely suspended some and impeded all. The kilometrage of the lines entering the computations above has remained practically the same during the year.

A short branch of the Peking-Mukden to Peitaiho Beach was completed this year. While a great convenience to that summer community, it does not carry sufficient business to affect gross revenues perceptibly and only the future can determine its financial value to the line. If property holders should increase rents or the price of vacant lots very materially, the growth of the colony will probably be so retarded that the railway receipts will not pay for the service rendered.

Two important pieces of track have been added during the year to the traffic bearing lines. One of these was that section of the Canton-Hankow line between Wuchang and Yochow—225 kilometers—on June 19. By the following August construction trains could run to Changsha,—145 kilometers farther, or 370 in all. This is the British section of the lines provided for in the Four-Nation Agreement. The German section, comprising a line from Hankow to Ichang has experienced a change of plan. Although surveyed through, it has been decided to build only to Yangjarhou,—at least for the immediate future. Between Dzotse and Yangjarhou, 166 kilometers, surveying is completed, most of the land needed has been purchased, and 133 kilometers have been graded. Of bridge work, 3,633 fongs have been completed, leaving 850 fongs yet to do. Work has ceased on this line only because funds for rails are on deposit in Germany, and the materials cannot be obtained. Nothing has been done on the American section, from Ichang westward, beyond surveying.

The Szechang Railway in Manchuria has been completed from Szebingchian to Santsiankwo. Traffic will move shortly, and the remaining section to Dzenchianton, will probably be finished during the coming months. This line will act as a branch line to the Chinese Eastern Railway, and is about one hundred kilometers long. It was built out of a loan from Japanese sources.

The most active work during 1917 toward new construction was under the direction of the Siems-Carey Railway and Canal Company. But the proposed line from Chuchow to Chinchow, through the provinces of Hunan and Kwangsi, in South China, seems now to be a doubtful eventuality. French protests, based upon a letter from some former cabinet officer, promising protection to the Yunnan line caused, it is said, the interruption of the preliminary survey about the middle of the year. How much these protests were assisted by an impression that the proposed line would be unprofitable, only those who made the decision can say. A considerable portion of the line is in agricultural territory, and until capital could be induced to develop the coal, iron, zinc, copper, and antimony resources of Hunan, agricultural products and supplies would be the chief traffic of the line. This is an evidence of the value of the Tientsin-Pukow results to the future program of construction.

Surveys Made

Reconnaisance and preliminary survey has been made from Singyangchow to Soohoo on a line that ultimately is expected to run to Chengtu. Financial arrangements, which were a source of anxiety at one time, have now been satisfactorily consummated, and the work on this line will recommence soon. This line also has been the subject of protest by the British on the basis of their claimed "sphere of influence" in the Yangtze valley.

Evidently the Chinese Government regards these protests as merely formal. And the assumption is probably correct that "spheres of influence" are fading out rapidly. The Ishii-Lansing agreement has secured a guarantee of the "Open Door" and the "Territorial Integrity" of China from the only nation that was in a position to endanger them. The recent statement of Allied War aims by President Wilson and confirmed by Lloyd George and the French Prime Minister, is an assurance to "weaker peoples" of an opportunity to work out their economic as well as their political destinies undisturbed. What better repudiation of the "sphere of influence" can China ask? If she can demonstrate her ability to keep internal order her delegates can go to the general peace conference with the assumption that so much has been granted. Either that, or prospective railway builders, when shown the map of the eighteen provinces, will repeat the question charged to one of them, "Where the hell is China?"

Report has it that a party of Japanese engineers just before the end of the year set out from Tsingtao to make a reconnaisance of a line from Tsinanfu westward, to a connection with the Taokow-Chinghua line. This project will bear watching. There are visible indications that the Shantung Railway is not very prosperous. If the Chinese Government could be brought to guarantee the interest on a line west from Tsinan, the result would be a feeder to the Shantung Railway without cost to it. If this extension connected with the Taokow-Chinghua line, it would be directly competitive with the Lung Hai for traffic between points on the Peking-Hankow and those on the Tientsin-Pukow. It also would put the splendid harbor at Tsingtao in competition with Shanghai and Tientsin for some forms of traffic from those same points on the Peking-Hankow. The political effects of the proposed extension are not within the scope of this writing.

Through Traffic Difficulties

Besides these items of a material nature, a number of events occurred to perfect the organization. Early in the year a conference was held in Tokyo with representatives of the Japanese National Railways, to improve through passenger arrangements and to inquire into the feasibility of through billing of goods. Because of likin and other obstacles, this method of handling goods was not considered practicable as yet. At the time of the traffic conference a considerable body of Chinese railway and Ministry officials headed by the then Vice Minister visited the Japanese railways on a tour of observation.

Conferences have also been held between the traffic officials of the several Chinese lines. The most important subject was one fundamental to the operation of the several lines as one national system,—domestic through traffic. Arrangements of this kind have been in effect for some time, but minor adjustments are required from time to time to improve the workings of the system. Interchange of goods wagons freely is fundamentally necessary to gain the largest advantages from through billing. But these wagons in all cases are the property of a given line, the bondholders of which have a certain proprietary interest in them. Car shortage is a chronic condition in China, and each line is reluctant to impair its revenues by permitting its cars to pass on to another line. To insure its prompt return without destroying the economics of interchange is a task requiring much experience and frequent adjustments. Then, too, repairs to wagons not on their home line is a difficult matter. It is complicated by the variations in type of equipment between the different lines. Probably a meeting of the heads of the locomotive departments of the several roads will be necessary ultimately to provide rules to govern. It has been suggested that when the market permits of the purchase of rolling stock, the Ministry of Communications purchase the wagons. In this way uniformity of type may be achieved and the supply of wagons may be distributed between the line as needed.

Probably the most important step in welding the Chinese railroads into a national system was taken when the uniform classification of accounts was prescribed. Toward the end of 1916 it looked as if that achievement had been considerably endangered. The division charged with the enforcement of the classification was reorganized out of existence and its membership scattered throughout other departments. The work on an annual report to cover the Chinese system was suspended, and except for the fact that the several chief accountants loyally followed the new classification, the situation was apparently back to where it was in 1913. In fact some of the sensations which were brought to light through the accounts of one line, rather confirm the suspicion that real accounting was not in good favor at the Ministry. However, the preparation of a report for 1915 was completed, and except for the unfortunate circumstance that the shop to which the printing was intrusted was closed by the police, the report would probably be in circulation by now.

Arrangements have been made for a compilation of the report for 1916. These arrangements have been delayed considerably by uncertainty over the fiscal year. This period was originally fixed to close December 31, but after the death of Yuan Shih-kai the reconvened Parliament fixed the Government fiscal year to end June 30. For purpose of the budget, therefore, the railways were required to use that date. For reasons that need not be stated here, June 30 is a very unsatisfactory date for railway reports. But the immediate effect was to fill the subject of the annual report full of confusion. Some roads followed the expedient of making two six months' reports, and all were delayed considerably. At a conference of the chief accountants held in Peking in November it was decided that if the Government fiscal year could not be changed to end December 31, budget requirements would be met, but that for reporting purposes December 31 would be used as the concluding date. Hereafter, the annual report for the Chinese system should appear more promptly.

The conference of the chief accountants just referred to is the third of its kind since the uniform classification went into effect. Besides deciding the closing date of the fiscal year, this conference made several amendments to the classification as dictated by experience, and cleared up many doubtful interpretations. Plans were made for standardizing the accounts of stations, and a further conference was arranged to be held during the coming spring. A committee of the Ministry has also done considerable work upon a uniform set of administrative rules to govern the routine of accounting. All of these matters aim to solidify the rather loosely jointed national railway system.

So there you have it. Revenues in depreciated currency, large payments uncollected from the military, increased operating expenses, several short lines in the hands of rebellious armies, floods, and pestilence! And there were scandals and other discouraging developments. On the other hand, there is an unmistakable increase in the offerings of traffic. The credit of the system is better assured fundamentally. There is now no doubt of railroads except as there is doubt of China. More and more the means of control have been perfected and the good work of past years preserved. How will you strike the balance? The debit and the credit items are not of the same kind.

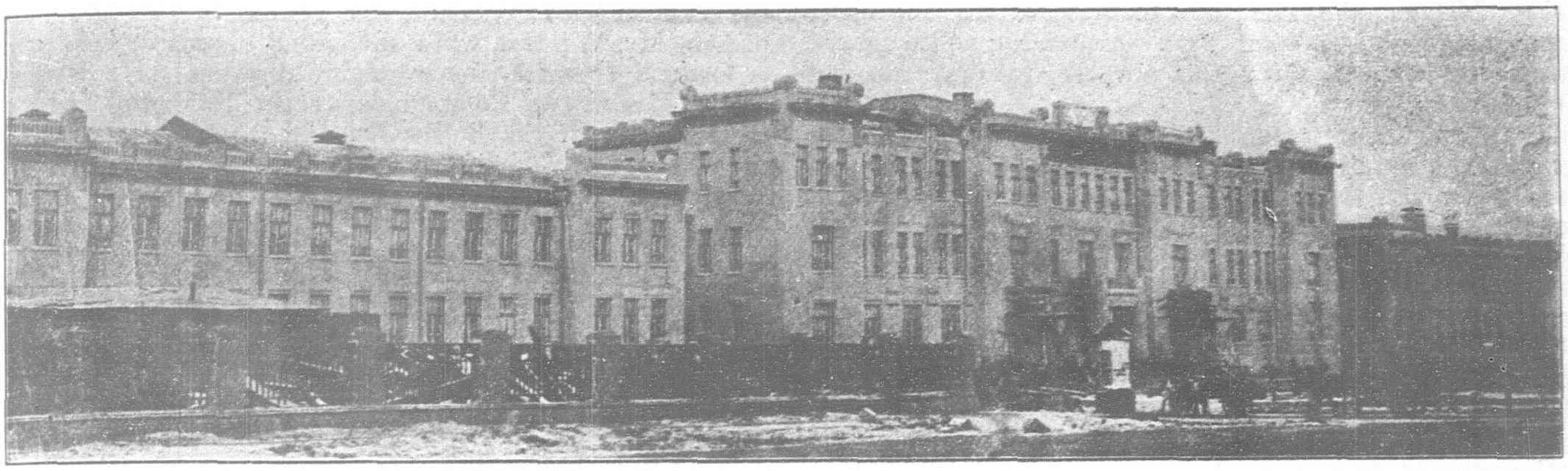
China and the Chinese Eastern Railway

Interesting Points Raised by the Entry of Chinese Troops into Harbin

Considerable interest was created in December by the action of the Chinese Government in sending troops into Harbin to maintain order, and in appointing the Governor of Kirin temporarily as director of the Russian section of the railway traversing Chinese soil and known as the Chinese Eastern Railway. By many it was believed that China had exceeded her powers, critics forgetting, of course, that Harbin is on Chinese soil, and that the so-called Russian railway is a Russo-Chinese joint stock enterprise, the agreement in connection with which provides that the director shall be Chinese and the shareholders Russians and Chinese. In appointing a director China merely conformed with a right that has been allowed to lapse since the execution of the Chinese director in 1900.

The call for Chinese intervention at this period was due to the anarchy which developed in Harbin as a result of the activities of the Bolsheviks, and the Chinese earned the thanks of all respectable Harbin residents by the prompt manner in which the troops entered the town, dispersed the Bolshevik soldiers, and restored order. Applause was also accorded China by the various nations interested in the maintenance of peace in this region, and desirous of seeing her take some part in the present war. That China should assert herself so well in a foreign sphere of influence was also regarded as a good augury for the ultimate regeneration of the nation. Hitherto in international matters China has bent the knee rather than straightened it to assert her rights, and the prestige she now gains, little as it is, will, it is hoped, inspire her to move to take her proper place in international counsels.

Her interference was not hurried nor offensive. The steps taken were decided upon with the full concurrence of the Allied Powers, and only after the Russian Legation at Peking had warned the Bolsheviks that their efforts to assume control of the administrative departments at Harbin, particularly those of the Chinese Eastern Railway, violated the provisions of treaties existing between Russia and China, and would precipitate the assumption of authority by Chinese officials and troops. The warning was unheeded, the Bolshevik leaders wired Petrograd for instructions, and when they were ordered to take over the whole administration in Harbin, including the Chinese Eastern Railway, which embraced the dismissal of General Horvath, the manager of the railway, and the heads of other departments, the Chinese officials issued a notification that owing to actions infringing the sovereign rights of China they were compelled to



Main Administration Building of Chinese Eastern Railway at Harbin

defend those rights and protect Chinese and foreign lives and property within the expropriated railway area, with troops. And with the entry of the troops was China's right of eminent domain over the expropriated area asserted, though Russians had come to regard the region as a sort of Far Eastern colony, from which Chinese control had forever been removed.

China's right to intervene to restore order in the expropriated area, as well as her right to appoint a director of the railway, was accorded in the agreement made on September 8, 1896, between the Chinese Government and the Russo-Asiatic Bank for the construction and management of the Chinese Eastern Railway. The first article in that instrument stipulated among other things that

> "the Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the Provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation."

The construction and operation of the line was granted to the company as a concession, and though the agreement stipulated in Article 12 that all profits accruing from operation were to be the property of the company for a period of eighty years, it likewise set it down that at the end of that period

> "the line and all its property are to revert to the Chinese Government without payment."

The additional important proviso was made in the same article that

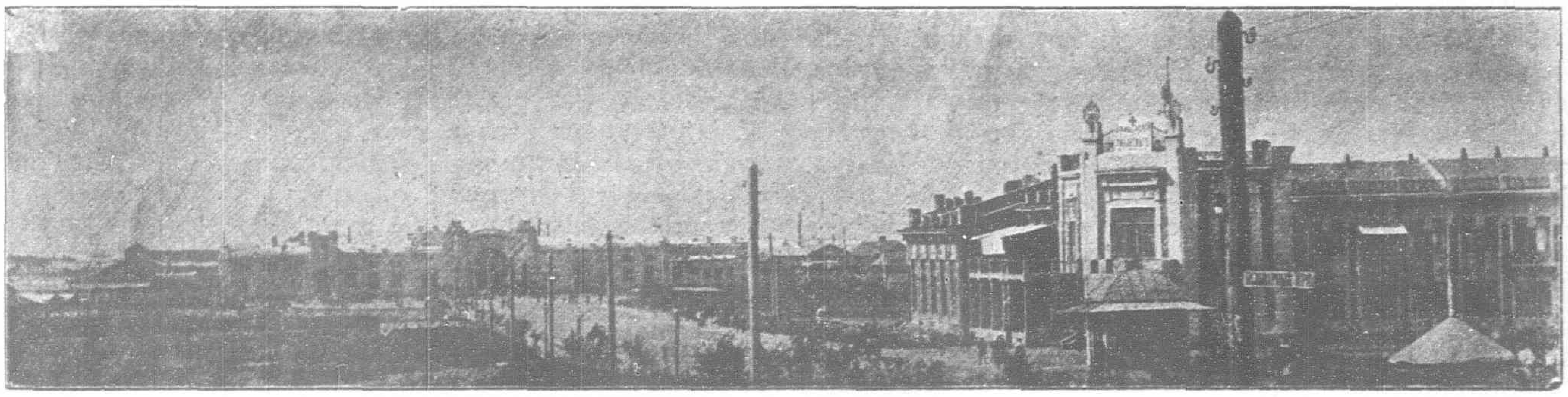
> "thirty-six years after the commencement of traffic China may take over the line on payment of all capital and all monies owed on account of the line and interest . . . China must actually pay over the amount of purchase to Russia before receiving possession of the line. On the day the line is completed and traffic commenced the Company will pay to the Chinese Government five million Treasury Taels."

In Article 5, it was provided that

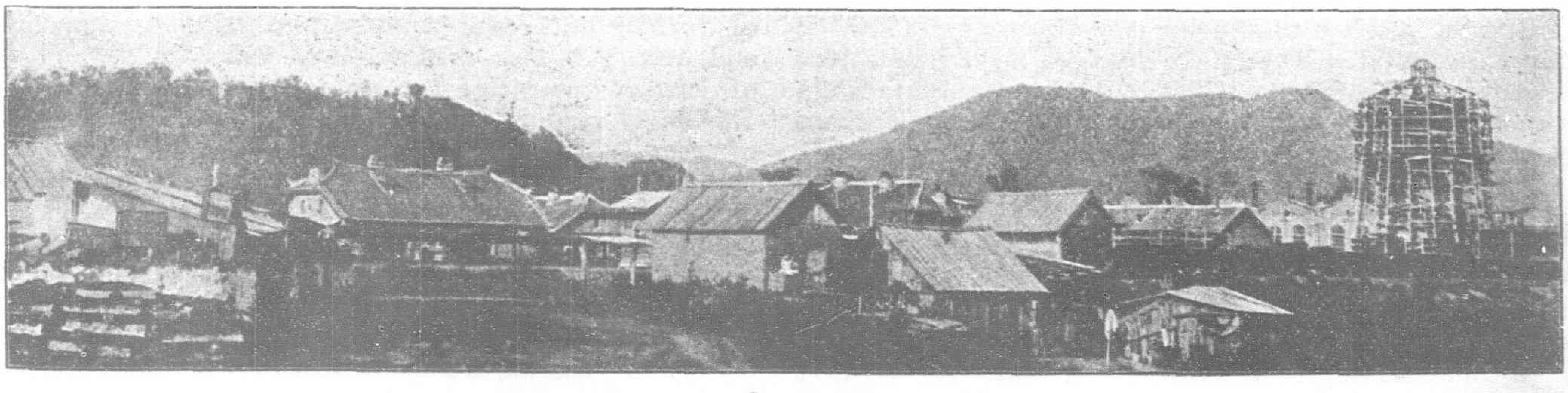
> "the Chinese Government will take measures for the protection of the line and the men employed thereon."

The statutes of the company were presented to the Ruling Senate of Russia by the Minister of Finances on December 8, 1896, for publication, they having been Imperially confirmed on December 4. Section 8 of these statutes states that

> "the Chinese Government has undertaken to adopt measures for securing the safety of the railway and of all employed on it against any extraneous attacks,"



Main Street of Harbin, Leading to Railway Station



Typical Station on Chinese Eastern Railway but it also obligates the company to preserve law and order on the lands assigned to the company by appointing police agents, and instructs the company, for this purpose, to draw up and establish police regulations.

Article 18 of the statutes deals with the functions of the Board of Management, the seals of which are to be at Peking and Petrograd (then St. Petersburg), while Article 19 stipulates that the Board is to consist of nine members elected by the shareholders (shareholders may be of Russian or Chinese nationality only), the chairman to be appointed by the Chinese Government, and the vice chairman to be chosen by the members of the Board from among themselves.

Article 29 deals with the stipulation in the agreement that the railway shall revert to the Chinese eighty years after the opening of traffic, while Article 30 deals with the right of the Chinese Government to acquire the railway on the expiration of thirty-six years from the time of the completion of the whole line and the opening of traffic.

It will be seen from the above that the Chinese were acting completely within their right when they sent troops into Harbin. That city stands within the leased ground of the Chinese Eastern Railway Company (some 29,000 acres), and therefore comes within the scope of the article in the agreement obliging the Chinese to render protection to the railway and its employees. And when China appointed a director of the railway she merely reasserted a right that she had allowed to lapse since 1900. It must be mentioned that the Russian Government at no time attempted to resist this right, the Chinese refraining from appointing a director after the last one was executed on the ground, it is believed, that successors to those who signed the agreement with Russia considered the transaction a blow to Chinese prestige and refusal to fill the post would be regarded as the registration of a passive protest. Before the Russo-Japanese War Russia repeatedly requested that the director be appointed, but without result. At this time the railway consisted of about 1,600 miles of line, extending from Manchuria Station on the northwestern frontier of Manchuria via Harbin to Pogranitchnaia, on the eastern frontier, and southwards to Dalny and Port Arthur from Harbin, via Mukden.

As a result of the Russo-Japanese War (1904-5) and the Portsmouth Peace Treaty (signed September, 1905), all the southern section, except that portion between Harbin and Changchun, was ceded to Japan, which act divided the property over which the Chinese director would have presided, and the cession to Japan raised a point of interest when about two years ago the Chinese Government decided to fill the post left vacant since 1900, and approached the Russian Government with that object. The Russian Government pointed out then that if a director were appointed over their section the Chinese should also appoint one over the Japanese section, a proposal which apparently raised a difficulty in the minds of the Chinese, for the question was not pursued with the Russians. And the point now arises again. With the appointment of the Governor of Kirin as director of the Russian section, the Russian Legation at Peking, while acknowledging the right of China so to act, naturally asks what will be done by China about the section now controlled by Japan. The salary of the director has to come from the Chinese Eastern Railway Company, and since half of the railway is held by Japan, the Russian section will not admit that it has to pay more than half the salary, so to secure the balance China will have to make some adjustment with Japan if she intends to retain her right to the railway directorship. Since both sections are now under different management the only solution naturally is either to appoint two directors or allow the post to lapse entirely. The problem resolves itself into a nice little international nut for the Chinese Government to crack.

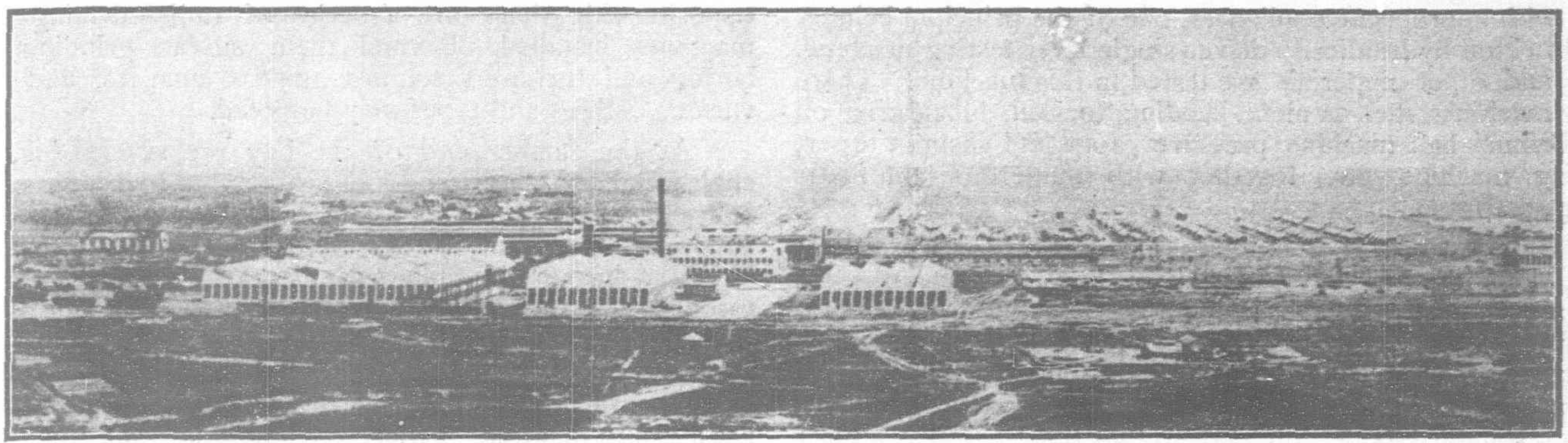
Affairs in Russia having developed as they have done, chaos replacing order and spreading eastwards far enough to menace Chinese territory, there is no reason why the Government should not make some endeavor to take advantage of the clause in the treaty which permits her to acquire the railway after thirty-six years from the date of opening of traffic. This period will expire in another sixteen or eighteen years, ample time in which to allow China to prepare for the purchase if she so desires.

Though China has appointed a director, that does not give her any right to executive control of the line. Such is vested in the Russian Vice President, who resides in Petrograd, and is at present Mr. Wentzel, while the actual executive head at Harbin is General Hovarth, the managing director. He is responsible to the Ministry of Communications in Petrograd (which city is in the hands of the Bolsheviks, and therefore they must control the Ministry of Communications), and he is an opponent of the Bolsheviks. The Chinese, too, have entered into the expropriated area solely in opposition to the Bolsheviks, so future action of the Bolsheviks will be watched with interest, though their influence does not now extend into Siberia. That they will endeavor to exercise jurisdiction is certain, but any step in this direction will no doubt produce serious complications since the Union of Railway Workmen happen to occupy the position of being able to stagnate work on all Russian railways if they decide to oppose any action of the Maximalists, and it can be taken for granted that they will oppose any attempt to make the Siberian railway a Bolshevik service.

Meantime it behooves the Chinese Government to watch closely the development of events on the railway within her own territory, and to enhance the excellent impression caused by her troops and officials immediately after their entry to Harbin. It is her opportunity to get some of her own back, if the Bolsheviks of Russia are foolish enough to continue to give her the opportunity, as they are doing.

A Product of a Railway

If any evidence were needed at this late date to emphasize the great advantages accruing to Chinese territory by the installation of a railway North Manchuria and Harbin could be cited as a clinching argument. Harbin has come into prominence recently by virtue of the turbulence created there by the Russian Bolsheviks, and the measures taken by the Chinese to suppress them. Before the building of the Chinese Eastern Railway this region of Manchuria was practicaly desolate. Where the modern city of Harbin now stands were a few fishermen's huts, set on the banks of a river running through country wind-swept and inhospitable. Now it is a great wheat area, and Harbin is an important city at the junction of the great Siberian railway and the line running south through Mukden to China proper, to Dalny and to Korea. It owes its origin and growth to the Chinese Eastern Railway. Until the vast lands of North Manchuria were put under cultivation and bore abundantly it depended solely upon the railway for its maintenance. Now it is a great grain market and center for industry connected therewith. Its greatest expansion took place beginning with the outbreak of the Russo-Japanese War, since when its rise has been phenomenal. The city itself occupies about 1,400 acres on the right bank of the Sungari River, and consist of three sections.—Old Harbin, New Town, and Wharf District. Before the present war its population, exclusive of the military, was set down at 40,000 while 50,000 to 60,000 Chinese were estimated to live in the suburban native town of Fuchiatien. A population of 100,000 to-day as against a few fishermen but twenty odd years ago! And what of trade developed by the railway? Where there was none two decades ago it ran into figures before the war up to roubles 40,000,000 or more. Even in this year of war the trade passing the Chinese Maritime Customs yielded in tariff dues Taels 1,235,000, an increase over the previous year of Taels 299,000—a total half as much as that derived at the old city of Canton. There are more than ten flour mills at Harbin in which 6,000,000 roubles had been invested by the end of 1917. They then were capable of turning out some 242,000 tons of flour annually. Vodka and beer was also manufactured extensively, and a number of smaller industries are gradually springing up. As a city, Harbin is unique, and before the Russian collapse was a center of great gayety. It possessed fashionable shops, businesses and banks, and is the center of the railway administration, the offices of which are situated in the New Town. The whole region touched by the railway has developed immensely, and the tremendous plains traversed by the trains are all under crops in the season. Before the railway was built the major part of the country was uninhabited where now it supports a thriving population, bearing living witness to the quick response made in China to the expansion of railway installations.



BIRD'S EYE VIEW OF SHAKAKO WORKSHCPS AND COLONY

The South Manchuria Railway Workshops

Details of Modern Car and Locomotive Building Plant at Shakako near Dairen

Originally, the South Manchuria Railway (with the exception of the Mukden-Antung Line) was a part of the Chinese Eastern Railway, and was ceded to Japan by Russia, with the consent of China, at the close of the Russo-Japanese War in 1905. When the South Manchuria Railway Company took over from the Imperial Japanese Government on April 1, 1907, the only workshop they possessed was a temporary building situated within the compound of the Dairen station. This was rendered serviceable for urgent and immediate needs, and small repair shops were erected at Liaoyang, Kungchuling, and Antung. Even at that early period, however, these several shops were barely sufficient to deal with current work, and it was realized that they would soon be inadequate for growing requirements, while new construction work was entirely out of the question. These drawbacks were felt more acutely upon the conversion of the lines to standard gauge, which had been completed on the main line and the Port Arthur, Fushun, and Yingkou branch lines by June 1, 1908.

It was therefore decided to erect at Dairen new and modernly equipped workshops on such a scale as to permit of the centralization of all the mechanical engineering work and repairs and the construction of new locomotives and cars and machinery required by the Company. The site chosen was 400 acres at Shakako, close to the main line, and about four miles from Dairen, the starting-point and headquarters of the Railway. It was a practically uninhabited spot, the only buildings near being a few scattered Chinese farmhouses, and it was therefore decided also to build a model village for the employees. The construction of the Workshops was commenced in 1909 and completed in 1911. The design and lay-out of the Workshops exemplify up-to-date ideas in shop arrangement and equipment, extension of the shops and additional installations of machines being made from time to time to serve new requirements.

Although described as the Railway Workshops, the plant at Shakako is utilized on a much wider basis than the construction and maintenance of locomotives and cars for the Company, for practically all the metal work required by the Company for its railway, tramway, mining, and other businesses is here undertaken, while orders from other railways and concerns are also executed. As regards the rolling stock department, 266 locomotives and 3,400 passenger and freight cars have to be maintained, while each year witnesses the construction of a number of new engines, passenger and freight cars, to supply increasing requirements. About 2,800 workmen are employed, of which 1,250 are Japanese, and the rest Chinese.

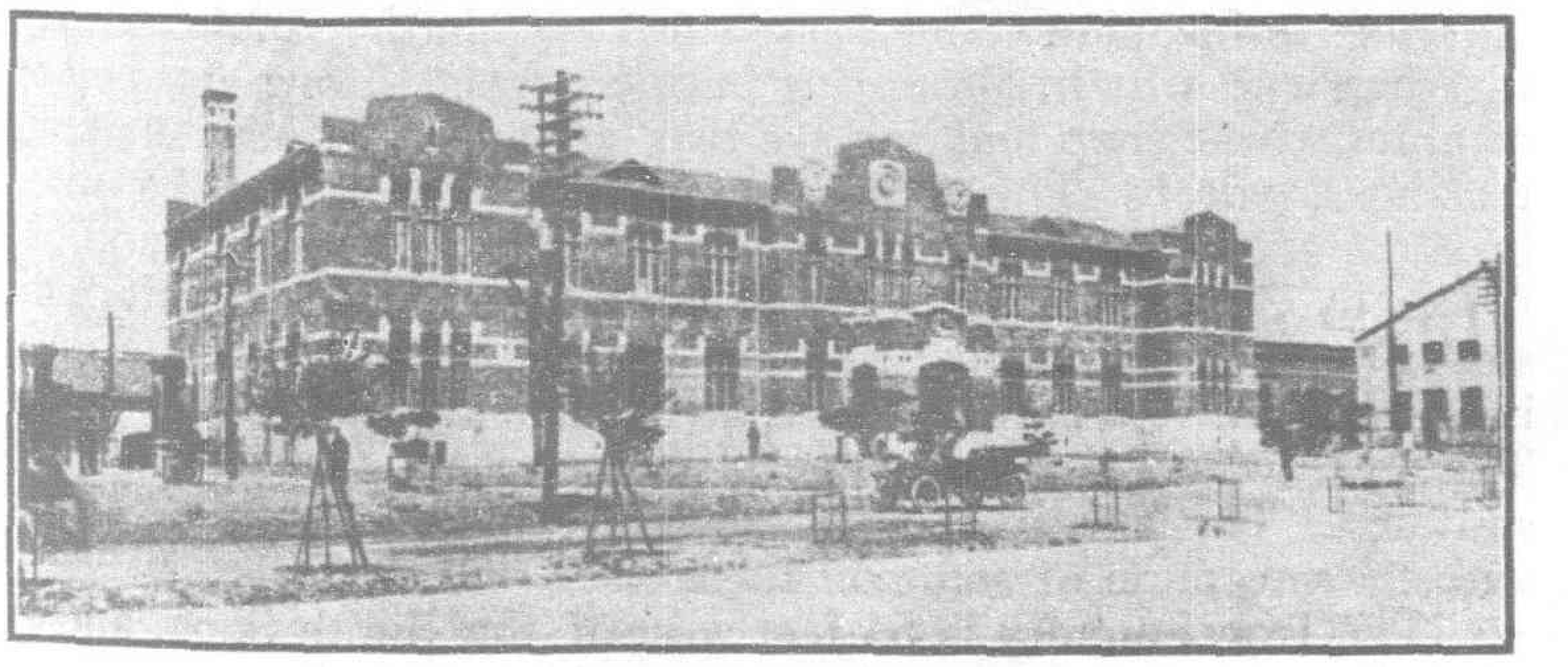
Arranged in parallel lines, the Workshop buildings cover about 16 acres, a further 184 acres being utilized for stacking and storing material, and to provide space for outdoor operations and traffic movements.

The shop plant has been so laid out as to group work of similar character and to provide straight line movement of materials. The buildings are located a sufficient distance apart to allow good natural lighting and are convenient for future extensions.

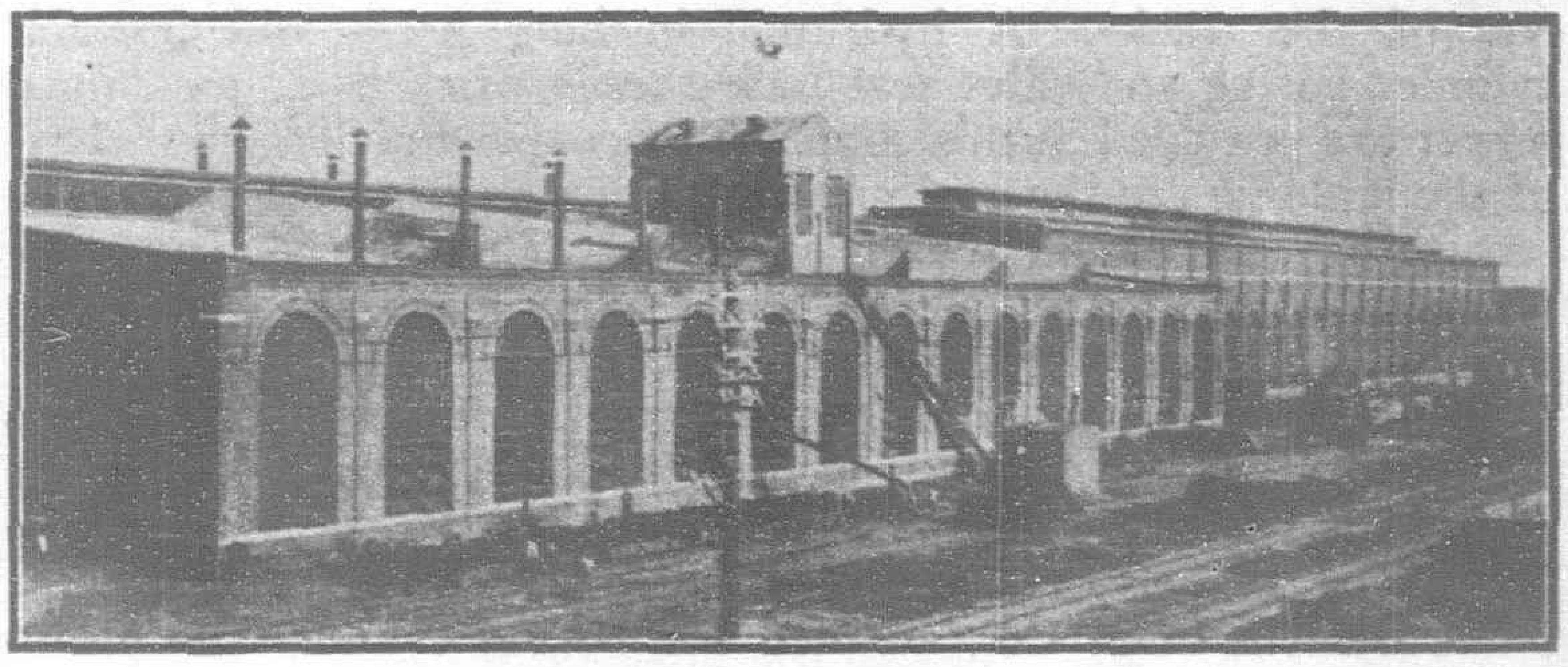
The block comprising the general office, is a two-storied building of brick. On the ground floor, with a wide corridor on one side, are offices for accountants and clerks with a dining room for the staff at one end. On the upper floor are offices and private rooms for the superintendent of the Workshops and his chief assistants. The Draughting room is long and well lighted, accommodating about 50 draughtsmen and tracers. It has a studio for photo printing and photography.

The various offices are equipped with telephones, are electrically lighted and steam heated, while the drawing office is illuminated by indirect lighting from five 2,000 candle-power lamps.

To the north of the general office is the Testing House, a steel skeleton structure with steel roof trusses covered with a double thickness of corrugated galvanized sheet iron. It is well



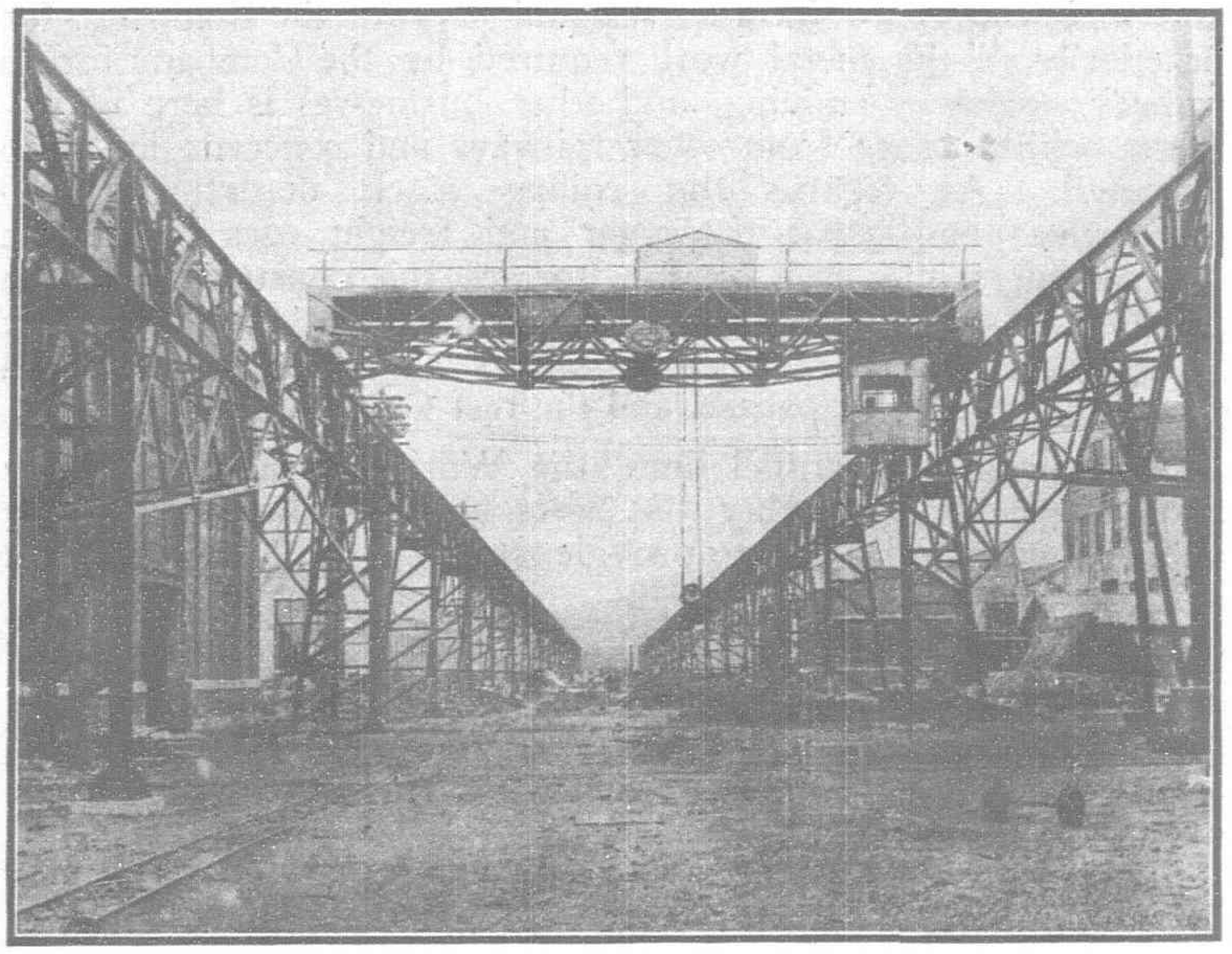
MAIN OFFICE, SHAKAKO WORKSHOPS



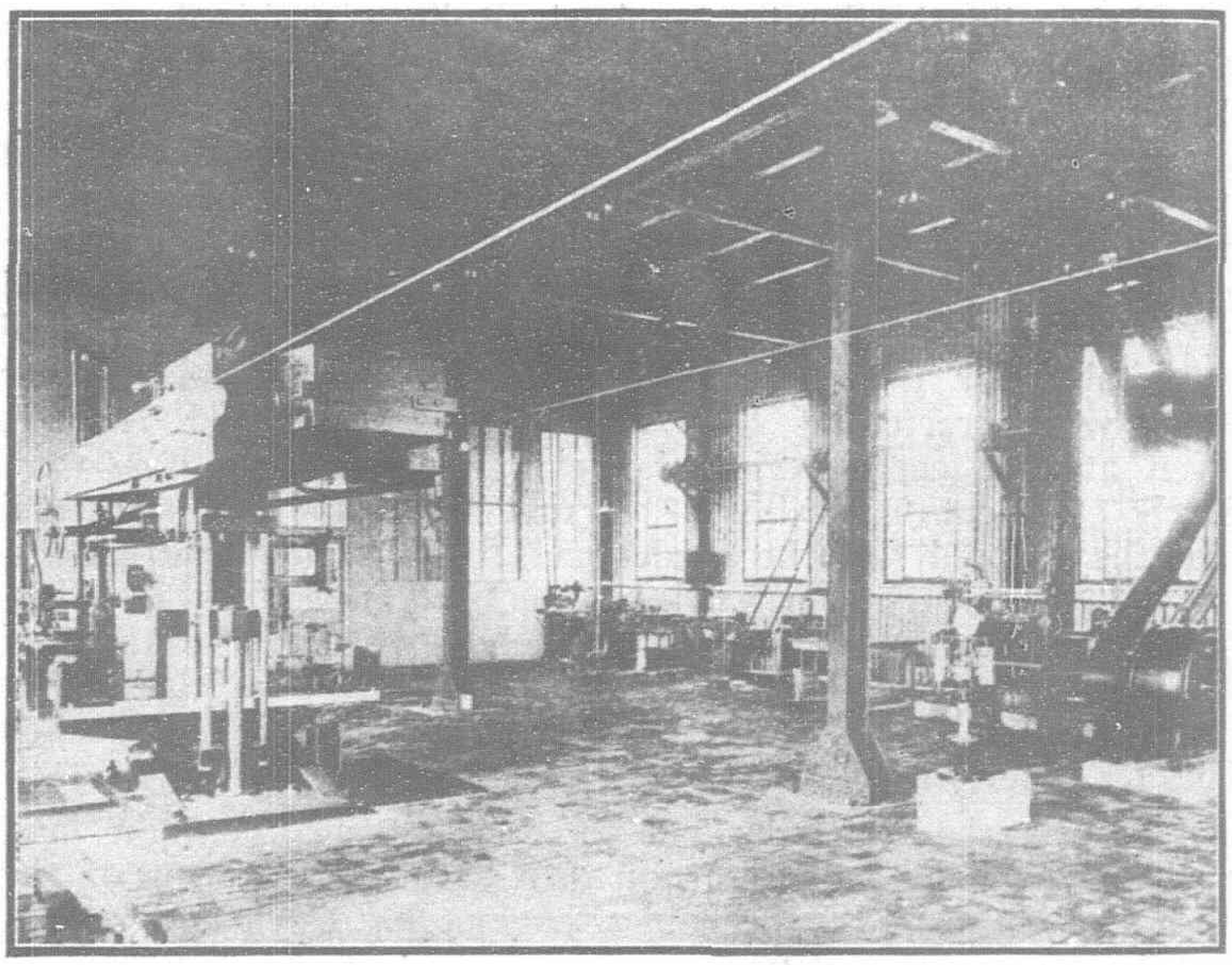
BOILER SHOP

provided with appropriate appliances, one of the principal being a 100-ton Buckton hydraulically driven single lever testing machine. All steel and other materials are tested in this machine. There are other machines such as metal bending, torsion, lubricating oil testing, Brinnel ball machine, pressure gauge and vacuum tester, file testing machine, etc., together with numerous automatic recording instruments.

The Boiler Shop is a building 118 feet wide and 300 feet long. It contains two bays, the main bay, 66 feet in span, forming a continuation of the Locomotive Erecting Shop, and is mainly reserved for erecting boilers, being equipped with a 30-ton traveling crane. In the middle section of the other bay there is a riveting tower provided with a 30-ton crane which will suspend a standard boiler on end, so that the hydraulic riveter can work upon almost any part. There are also three portable hydraulic riveters working on swing arms. Along the roof columns, between the two bays are drilling machines, radial arm drills, boiler tube and sheet drilling machines. At the opposite end of the shop are a plate edge planer, vertical and horizontal plate bending rolls, boiler shell drill, also shearing and punching machines. Here also is a hydraulic press by which tube plates, throat plates, fire-box sheets, etc., are pressed and flanged to shape, a plate heating furnace completing the equipment. The hydraulic accumulator is located close to the wall, supplying water pressure at 1,500 lbs. per sq. in. The pump for this is driven by an electric motor. Oxy-acetylene and electric processes are also utilized in this shop for cutting and welding steel plates. The Engine-Erecting and Machine Shops comprise a building of steel skeleton structure inclosed in brick walls, 444 feet long and 190 feet wide, with three bays. The right-hand bay of 70 feet span is a continuation of the main bay of the Boiler Shop and is provided with 22 tracks and pits. One 100-ton and two 30-ton over-head traveling cranes are installed in this bay. An engine is brought in to the farthest end track from the turntable placed outside the shop, the complete engine is lifted up by the 100-ton crane, and then carried over to the desired position on one of the tracks. A hydraulic bushing press and portable cylinder boring and valve seat facing tools worked by pneumatic power are provided in this shop. The center and left-hand bays of the building are the machine and fitting shops, each bay being served by one 10-ton overhead crane. The shop shaftings are all operated by electric motors, while many machines are directly driven by motors, the current being supplied from the Works Power Station. Numerous wall cranes in this and other shops are worked by electric or pneumatic power. On entering the shop from the Boiler Makers' department, a large planer by the Cincinnati Planer Co., and a cylinder boring machine by the Niles Bement-Pond Co., adapted for boring cylinder and piston valve liners simultaneously, attract special attention. On the opposite side there are a series of radial drilling and planing machines installed. Beyond them surface-grinding machines, boring and turning machines, millers, shapers, and slotters of various designs and types may be noted.



Yard Crane



Testing Laboratory

At the farther end of the bay are several big lathes for engine and car wheels and axles, a 300-ton hydraulic wheel press being installed near by. The left-hand bay contains one big vertical boring mill of the Betts Machine Co., and numerous lathes, a group of millers and shapers, and several special machines, by various makers. On the left-hand side of the bay is the tool shop and store. Here are several grinders and an electric annealing and tempering furnace. Drills, cutters, gauges, and the like are here constructed. Near the entrance of the shop are a group of fitters' benches. The galleries running alongside the shop wall contain turret lathes and numerous small lathes, with a group of automatic machines, including automatic stay bolt screwing and drilling machines.

Smithy and Forge Shop

The Smith and Forge Shop, which is 60 feet west of the Boiler Shop and 80 feet south of the Machine Shop, is 360 ft. long and 120 ft. wide, constructed on the same lines as the Machine Shop. At the east corner of the shop are two scrap-ron heating furnaces each with a Babcock and Wilcock water tube boiler mounted on top. Here are 10 assorted hammers, including a 60-cwt. steam hammer by The Thwaites Brothers, Ltd., England, a 50-cwt. Brett's patent drop, and a 20 cwt. pneumatic power hammer. At the end of the shop is a 150-ton hydraulic forging press, by which car fittings and other details are pressed to shape, served by a coke fired furnace placed near by.

A big punching and shearing machine, motor driven, is supplied for cutting material and scrap metals, and can shear up to ½ inch materials.

A part of the west side of the shop is appropriated for the spring section. Among its machines are those for testing, tapering spring plates and bars, shearing, slotting, and nibbling, together with a hydraulic spring buckle press. Along the center columns of the shop building are two bolt and rivet head making machines, one by The Ajax Manufacturing Co., and the other by the National Machinery Co., and one nut forging machine all driven by electric power. Among other appliances is a battery of steam drop stamps, consisting of two 16-cwt. and one 8-cwt. heads, by which mainly standard car fittings are stamped to shape. The west corner of the shop is occupied by copper and tube smithies. The furnaces in this shop are heated by coal or coke with the exception of some oil furnaces.

The Iron Foundry is 60 feet west of the Smith Shop, and is a building, 260 feet long and 120 feet wide, of steel covered with

ENGINE ERECTING SHOP

MACHINE SHOP

a double thickness of corrugated galvanized sheet iron. The center bay of the Foundry is served by two overhead traveling cranes, one of 15-ton and the other of 10-ton capacity, and each side bay by one 2-ton overhead traveler, all operated eletrically. At the west side bay are three cupolas, one of 7-ton and two of 5-ton capacity, so placed that they may be charged from one charging floor, the blast being supplied by two Root's blowers driven by electric motor. An electric runway of one ton capacity conveys pig iron and coke to the charging floor. At the corner of the shop is a series of loam mills, sand riddler, and centrifugal sand mixing machine driven by electric power. The opposite bay contains a core room and drying ovens. Freight car cast-iron wheels 33 inches in diameter are made in this shop, a portion of the floor in one of the side bays being reserved for the special chill moulds for wheels.

Brass and Steel Foundries

The Brass Foundry, 120 feet long by 60 feet wide, and the Steel Foundry, 120 feet long and 90 feet wide, are arranged in a series with the Iron Foundry. In the Brass Foundry are installed one Radio (3-140 lbs.) and one 400-lbs, tilting brass melting furnace, each attached with motor driven fan, being served with a one-ton hand operating jib crane. Pneumatic moulding machines are used for all repetition work. The Steel Foundry is a quite new addition to the plant, and is equipped with one 3-ton preheating cupola and one 1-ton Kaneko's Patent Baby Converter, the former being served by a Root's blower and the latter by a Turbo blower driven by a 60 horse power electric motor.

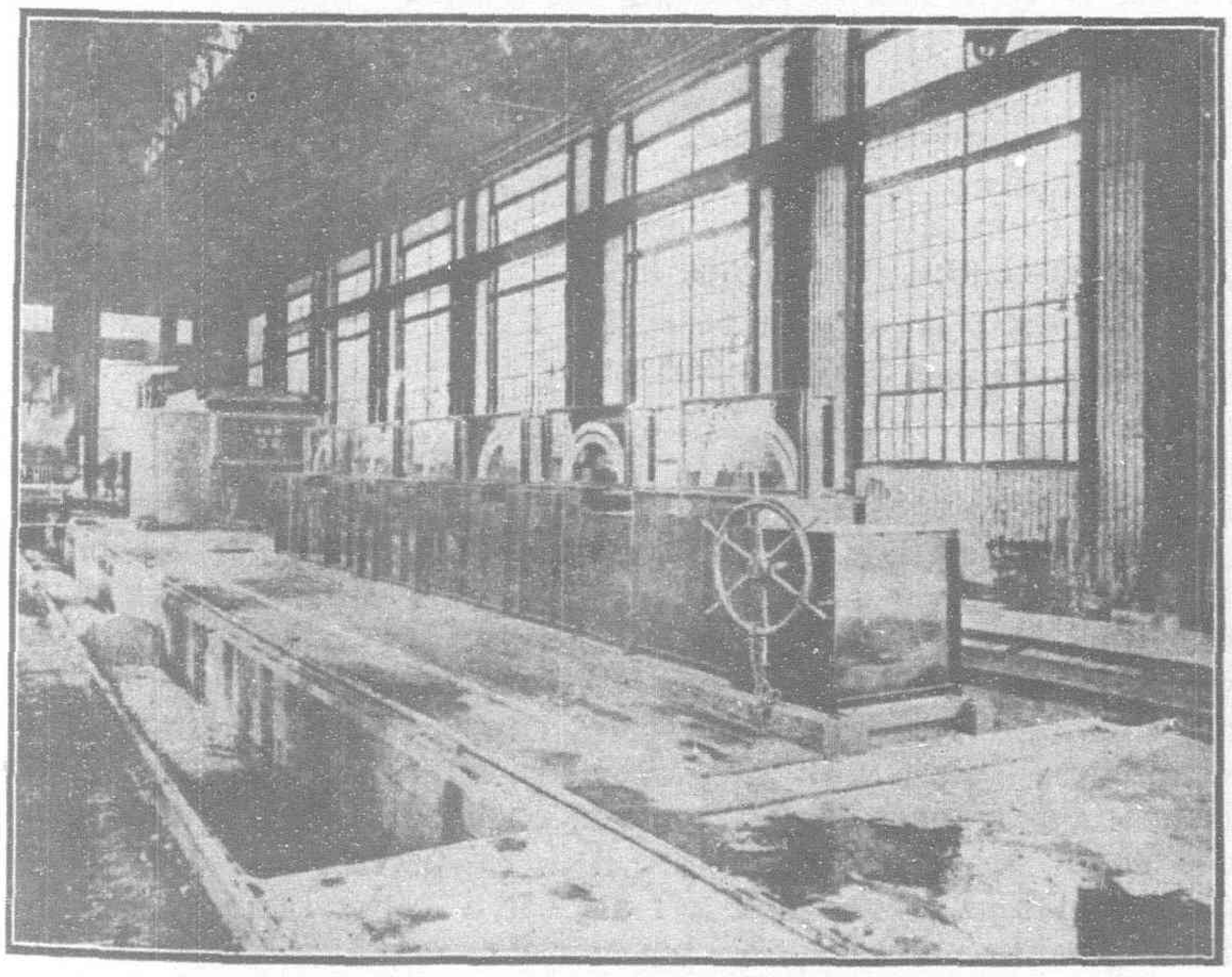
The Pattern Shop is adjacent to the Iron Foundry and is a three-storied building, 160 by 40 feet wide, of steel covered with galvanized sheet. A section of the ground floor is used as a casting bed of brake blocks and other light castings for engines and cars. The rest of the floor space is reserved for storage of materials and patterns of large size, the office also occupying a part of the space.

The second floor is the pattern-making shop. It is well equipped with labor-saving appliances, among which circular and band sawing machines, planing machine, fret saw, wood trimmer, turning lathes, etc., may be noted. A dust-collecting plant is also installed on this floor, shavings and sawdust being automatically removed. The whole space of the third floor is for storage of patterns. An automatic sprinkler system is provided.

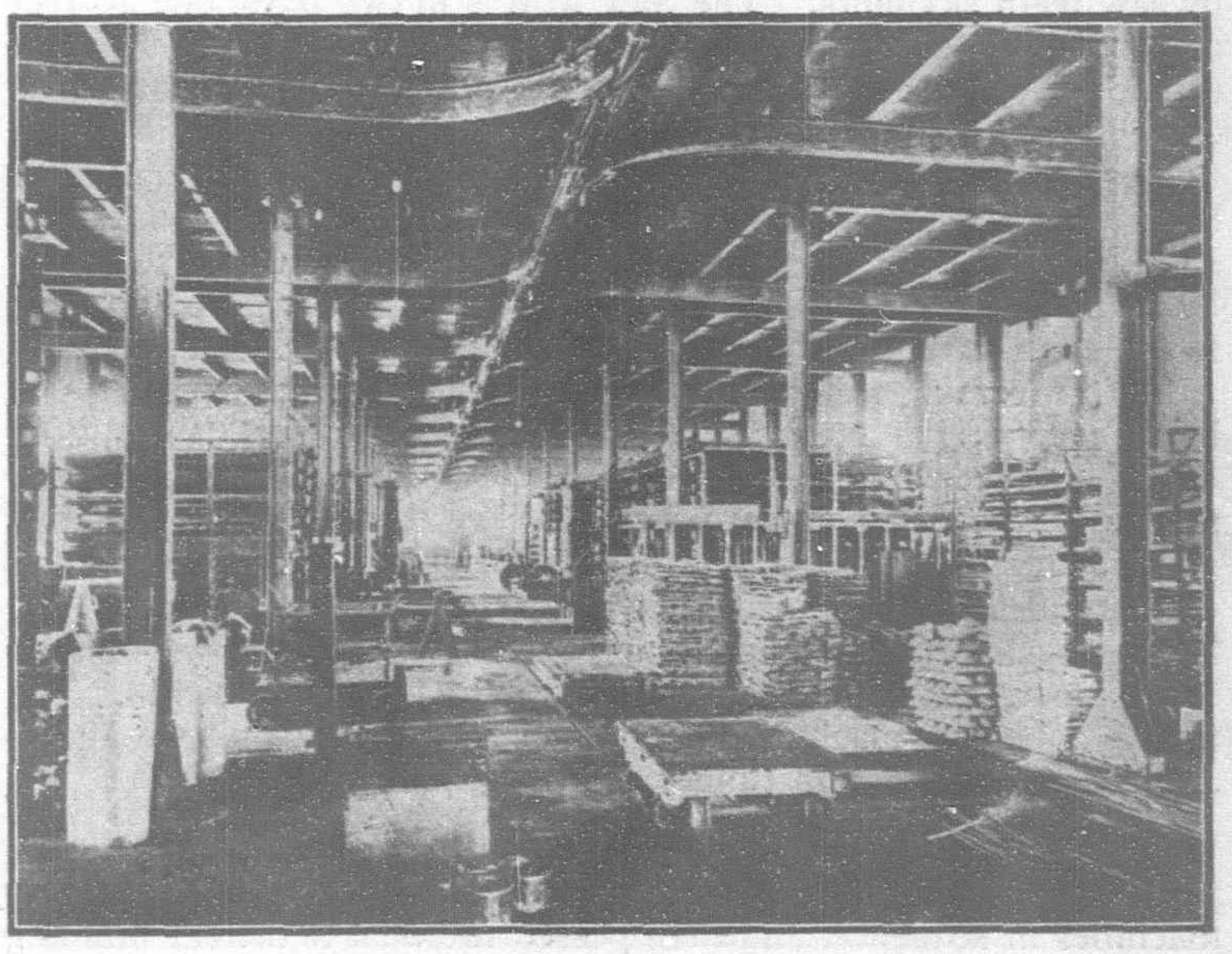
The General Store is situated at the center of the general shop plant, between the Locomotive and Car departments. The building is of two stories, 300 feet long by 60 feet wide, covering a ground area of 18,000 sq. feet, and is provided on both sides of the building with storage and unloading platforms 15 feet wide.

The Oil Store is a small fire-proof building 30 feet long and 24 feet wide, isolated from the general store house.

The Car Department truck shop is situated parallel to the General Store 110 ft. to the west and all shops belonging to the Car Department, are steel skeleton structures with steel roof trusses, covered with a double thickness of corrugated galvanized sheet iron, the air space containing a layer of bituminous hair felting to



ENGINE WEIGHING SHOP

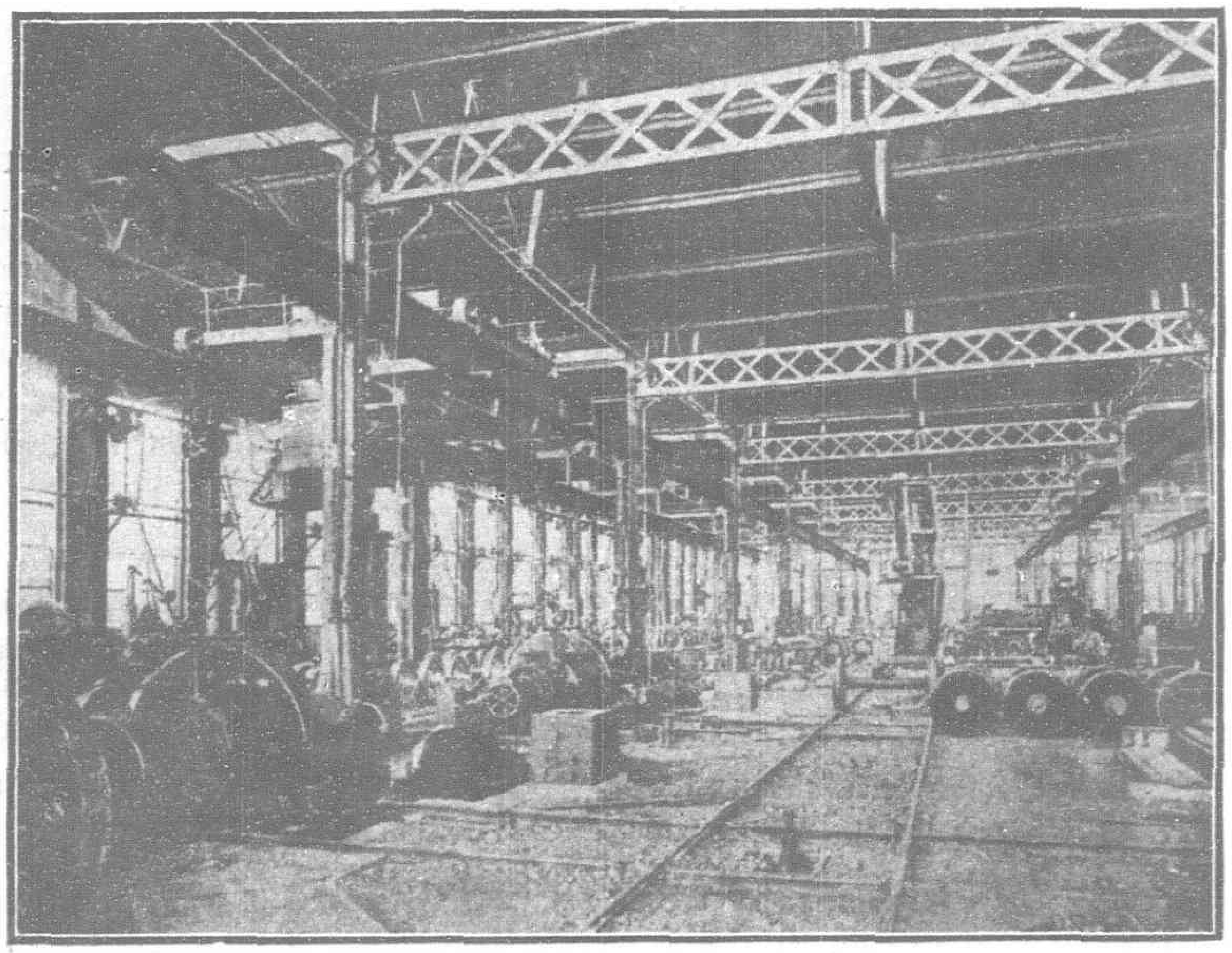


GENERAL STORE HOUSE

render the buildings cold proof. Though called the truck shop, air brake, steam heating system, brass works, and all other passenger and freight car fittings are also repaired and manufactured here. It is in five bays, 320 feet long and 120 feet wide, the two intermediate bays each being served by one 5-ton overhead traveling crane. One corner of this shop is partitioned off for brake repair work, and provided with two test racks for testing air brake triple valves. An electric plating and oxydizing room is adjacent. Along the eastern bay are polishing machines, screw threading machines, groups of lathes and drilling machines, two car wheel boring mills and two wheel lathes. On one side of the center bay are two center grip car wheel lathes and one double axle lathe motor driven. One motor-driven hydraulic wheel press working at a total pressure up to 200 tons and an oil-burning tire heating furnace are accommodated with a 5-ton jib crane. A pneumatic power hammer is used for fastening the tires, vice benches near to the end of the bay, where all pipe work connected with brake and heating system and other miscellaneous fitting and furnishing are mainly done. Here are one pipe threading machine and one punch and shearing machine.

Saw Mill and Freight Car Shop

The Saw Mill and Freight Car Shop is 320 feet long and 220 feet wide. A noticeable feature of the shop is the provision for ample natural lighting. Light from wall windows is supplemented by saw teeth skylights. The Saw Mill is in two bays, one 40 feet and the other 20 feet wide. The 40-foot bay has one track in the center and is served by a 5-ton electrically driven overhead traveling crane. Outside the north end of the saw mill is the timber yard. At the yard end of the shop are two horizontal log band sawing machines supplied by Messrs. Thos. Robinson & Son, Ltd., of England. These machines deal with logs up to 36 inches by 40 inches, each being driven by a 40 horse power motor fixed to the shaft carrying the saw pulley. Beyond the band saws is a 3 foot traversing cross cut saw bench. The circular rack saw bench, carrying a saw up to 40 inch diameter, used for cutting deals, is driven by a 40 horse power motor. There are other machines, including circular saw benches, band sawing machine, planing and matching machine, hollow chisel mortisers, panel planer, double ended tenoning machine, vertical tenoning machine, multiple boring machines, etc. The planing and matching machine, or four side planer, has a capacity up to 15 inches by 6 inches. The multiple boring machine carrying six spindles can bore up to 4 inches in diameter in timber up to 16 inches square.



Car Truck Shop

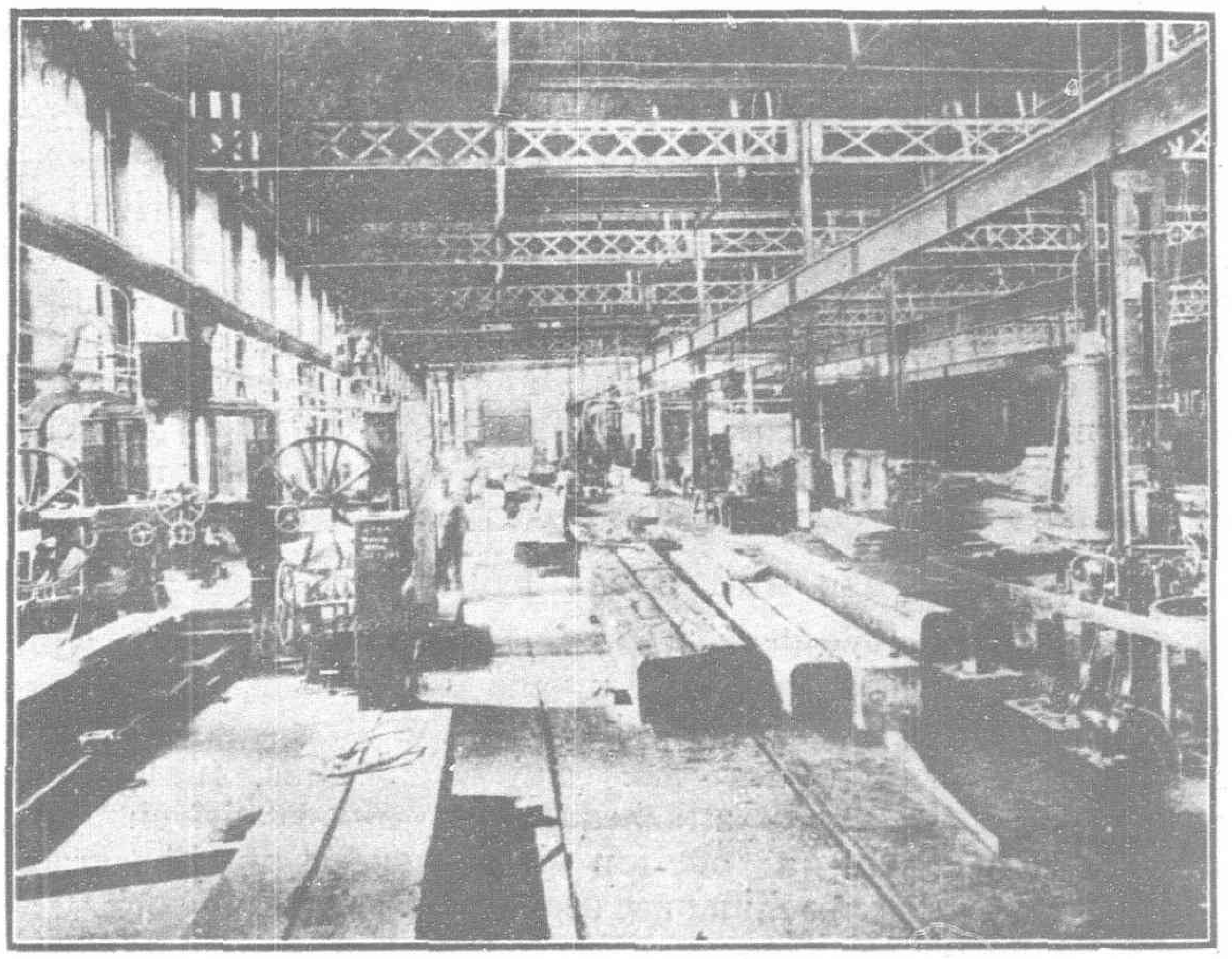
Longitudinal sills, end sills, cross beams, etc., after being planed, are fed through the tenoning, boring, and mortising machines in sequence, and then passed forward to the car building shop.

The Freight Car Shop consists of four 40-foot bays, each bay being served by one 10-ton overhead traveling crane. There are eight tracks in this shop, arranged with 20 feet space between centers, having room for 64 standard cars. The construction of new freight cars and heavy repair work are principally carried out in this shop, ample space on yard tracks being provided for light repair of freight cars.

Passenger Car Shop

The Passenger Car Shop is a lofty and airy shop, 282 feet 6 inches long by 160 feet wide, built in practically the same style as the Freight Car Shop, and having three bays. The eastern part of the shop is allotted to cabinet work, and here is found a group of modern machinery for dealing with all interior and decorative woodwork of passenger car building. It contains circular and band saws, planing, boring, tenoning, mortising, scraping, moulding, and sand-papering machines, together with wood-turning lathes. The veneer shop occupies one corner of this building and is partitioned off from other departments. It contains several veneer presses and a special steam-heated press for quickly applying and drying veneer.

The western part of the shop is provided with nine tracks arranged crosswise to the bays, each being served with one 30-ton overhead traveling crane. As a rule, each track receives two cars of the standard size, the overhead cranes being used to lift the car body in case of removing the trucks.



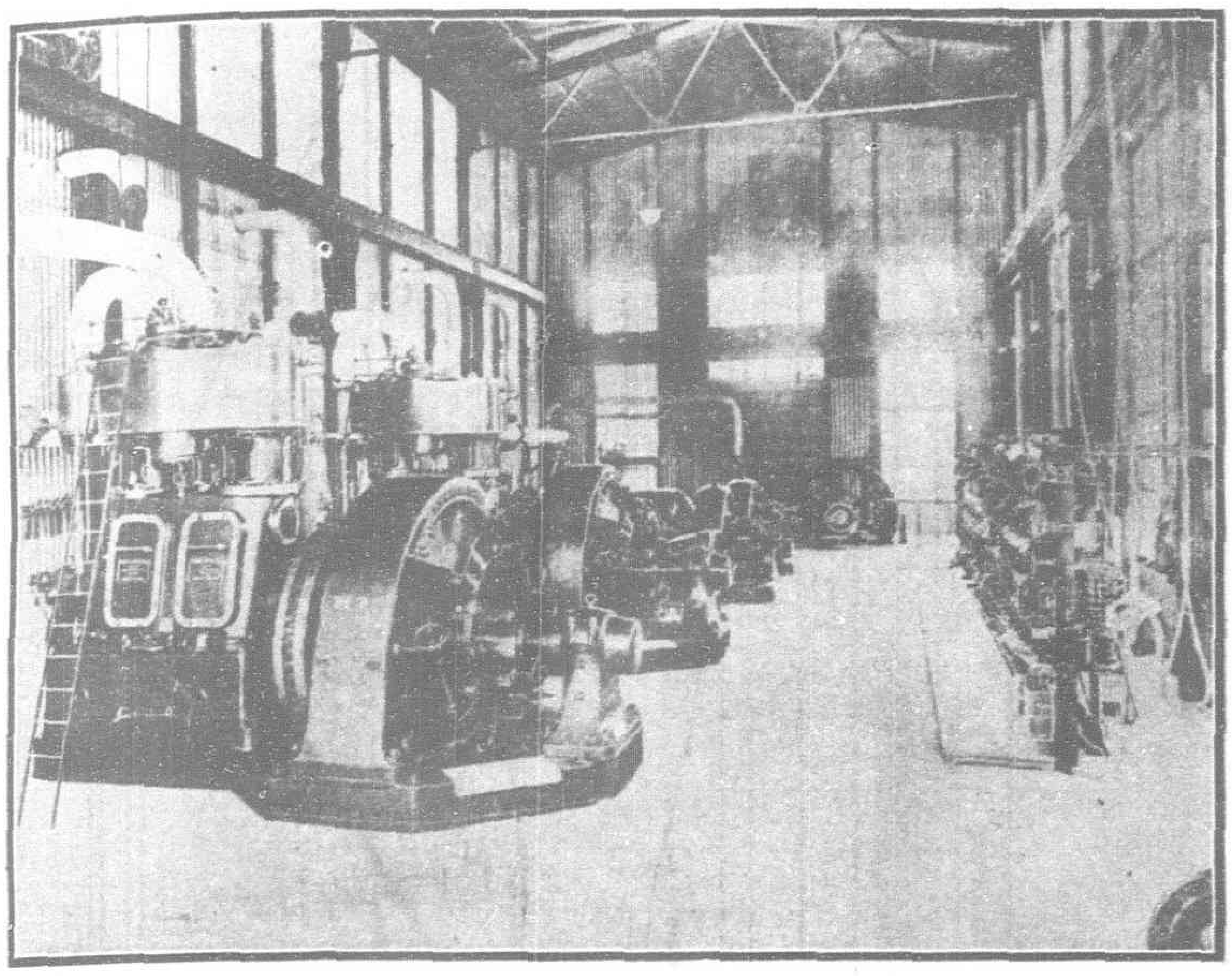
Wood Working Shop

The Paint Shop is south of the Passenger Car Shop, and is separated from the latter by an electric traverser. This building is 282 feet long by 160 feet wide, the roof columns dividing it into four longitudinal bays. Satisfactory diffusion of light is obtained from saw-teeth skylights. It contains 10 tracks spaced on 20 feet centers, each track having a capacity of 2 cars.

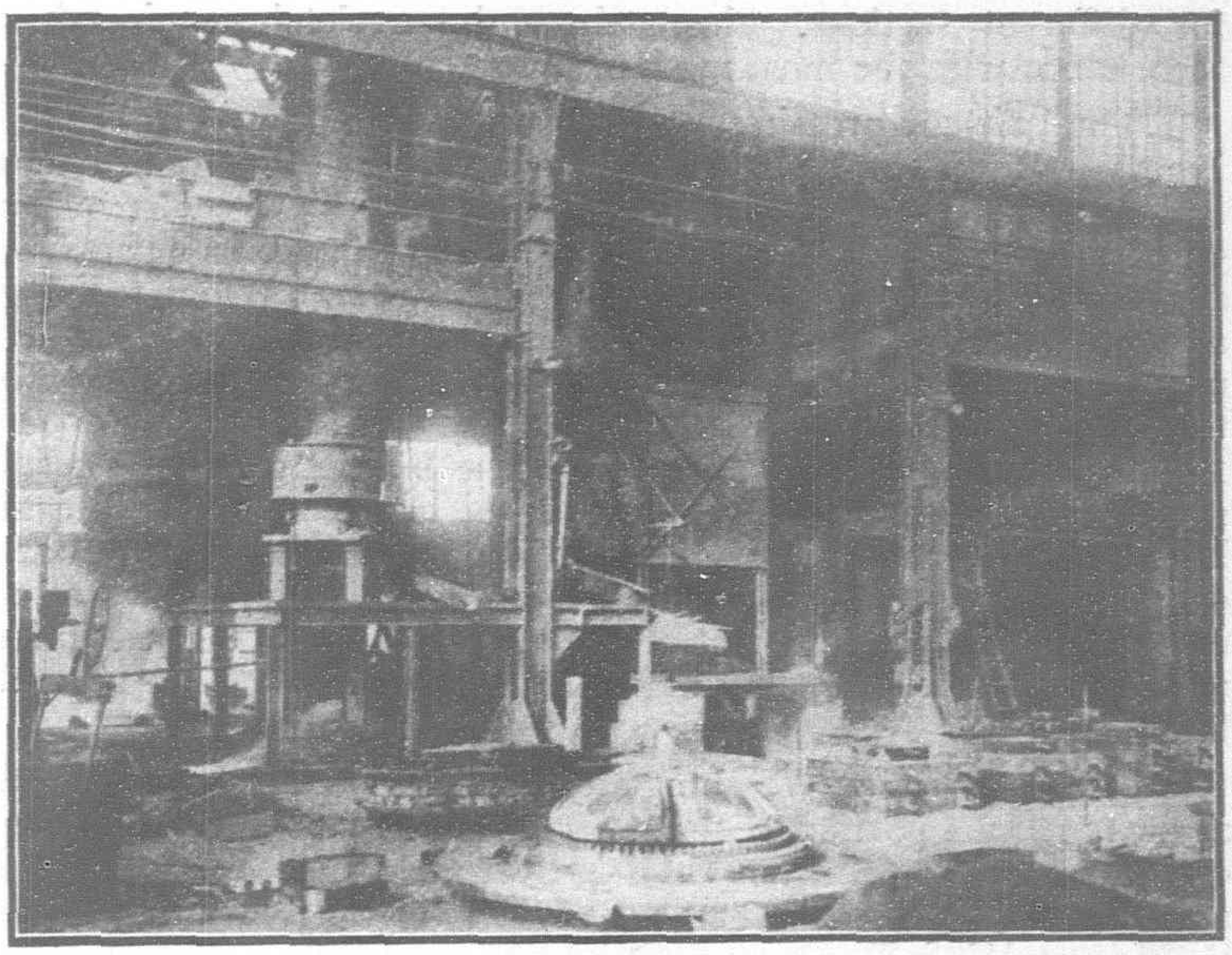
One line is always reserved for the special cars of the Company, so that they may go out in service at short notice.

Electric Power Station

The Power Station is situated between the Passenger Car Shop and the Iron Foundry, opposite the Truck Shop. It supplies all power required on the works. The building is 100 feet long by 95 feet wide, and is made in two bays. One bay, 55 feet wide, is for the boiler room, which is partitioned off from the engine room. The boiler plant consists of three batteries of water tube boilers with integral superheaters supplied by Messrs. Babcock & Wilcock, Ltd., London, each boiler being fitted with the chain grate stoker of the makers' patent. Five groups of Greens' patent fuel economizer are fitted in the main smoke flue leading to the chimney, in a position between the boiler batteries and the partition wall. There are three " Weir " vertical direct



Electric Power House

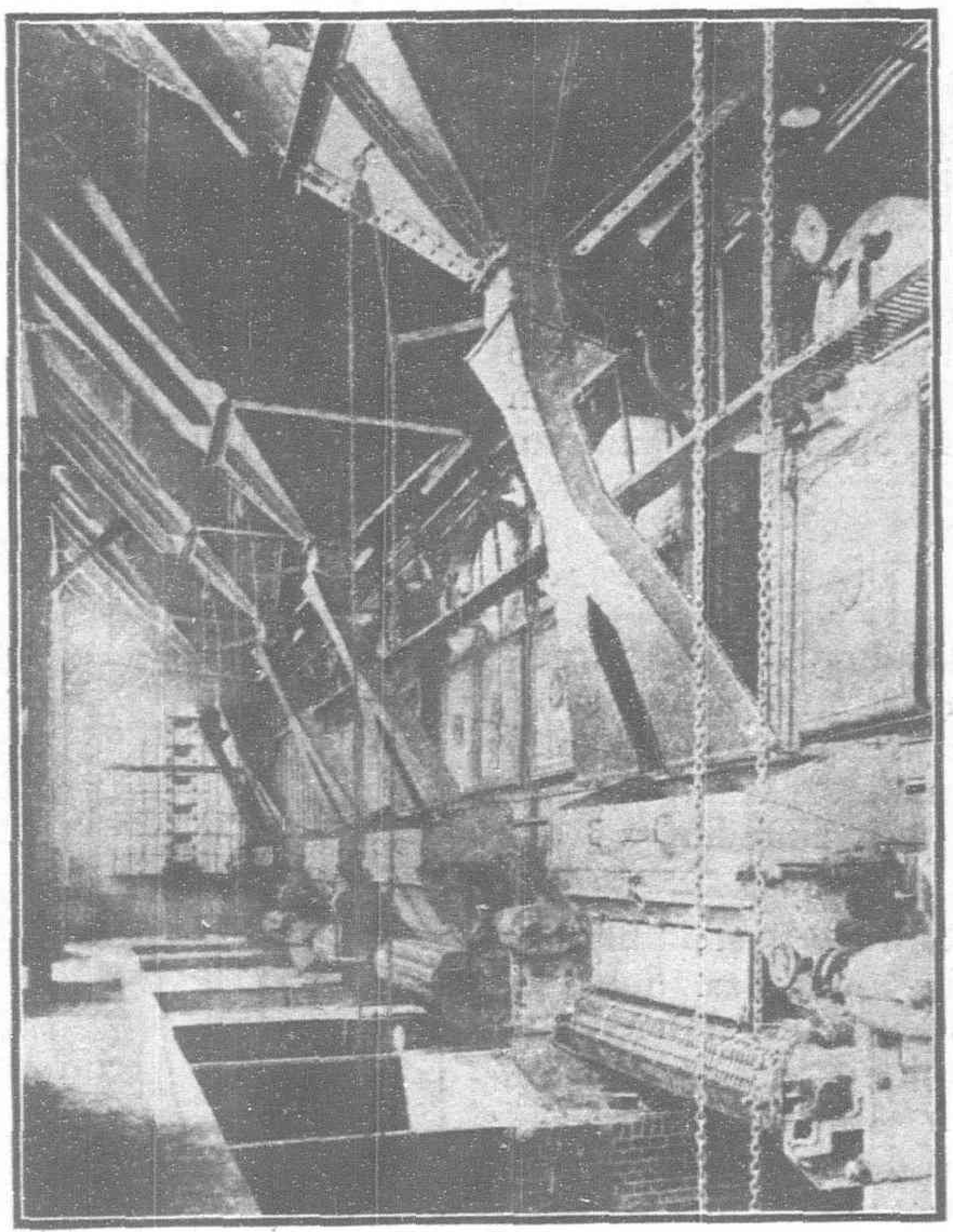


Steel Foundry

acting pumps used for feeding boilers. The chimney for the boiler plant is of the self-supported type, built of steel plates, standing upon a brick work base. It is 157 feet high.

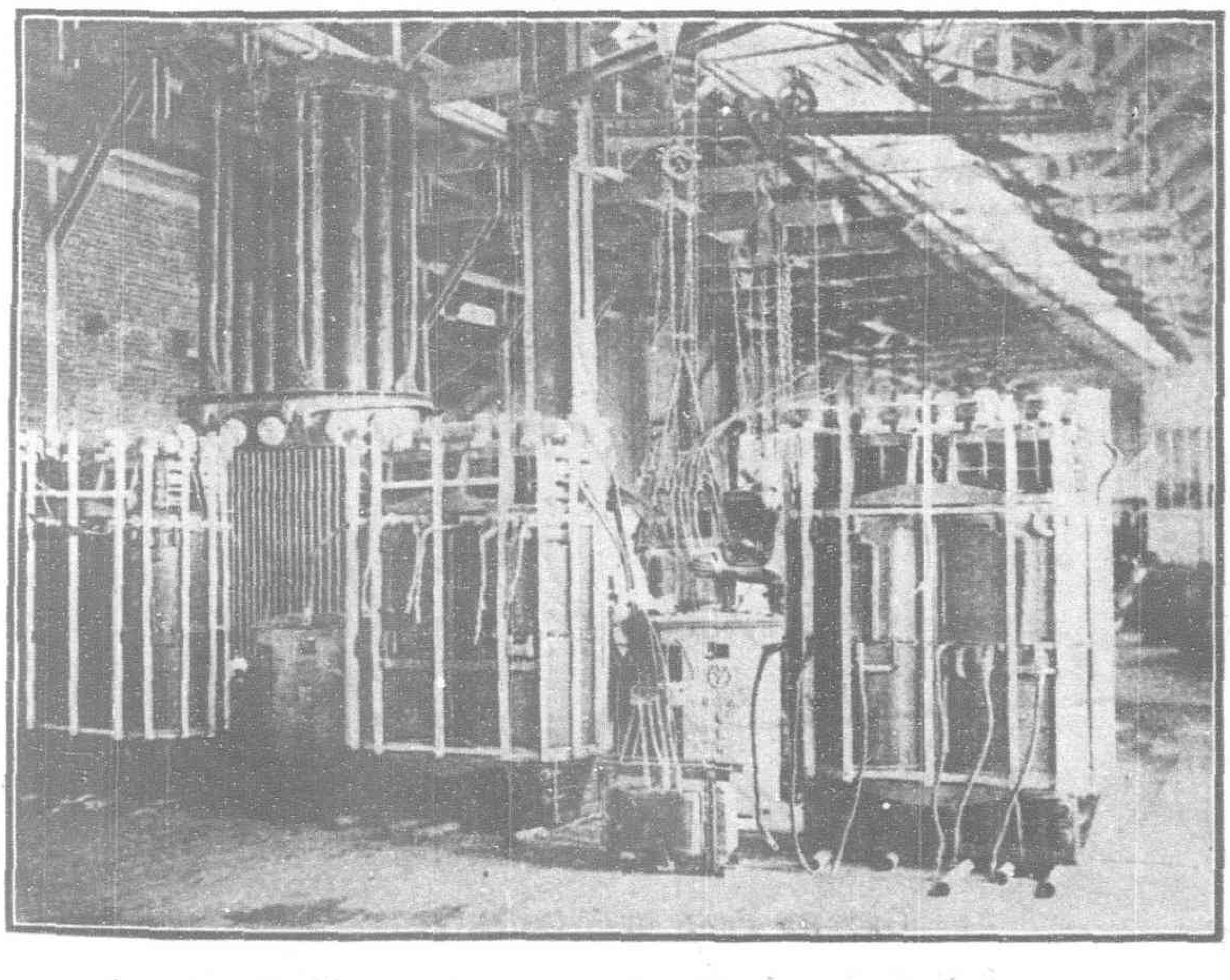
The coal unloaded from cars drops into a receiving hopper and passes through a simplex valve into the automatic filler and fills the buckets of the endless chain bucket coal conveyers. It is then dumped from them into any of the six overhead coal bunkers in the boiler plant, from whence it is fed to the coal receiver for each grate by the working of a pull chain. The ashes are raked to the front of the boilers, shoveled through the openings in the foot plating into the buckets as they pass the ash trench, and are raised and dumped into the ash bunker outside the boiler plant.

The engine room is 40 feet wide and 100 feet long, and provided with one 8-ton overhead traveling crane. There are two sets of steam engines directly coupled to 400 kilowatt dynamos, two sets of 250 kilowatt motor generators, two air compressing engines, and one fire service pump. The dynamo driving engines of Messrs. Bellis & Morcom, Ltd., construction, are compound two-crank two-cylinder vertical inclosed self-lubricating high-speed non-condensing type capable of giving an output of 570 B.H.P.

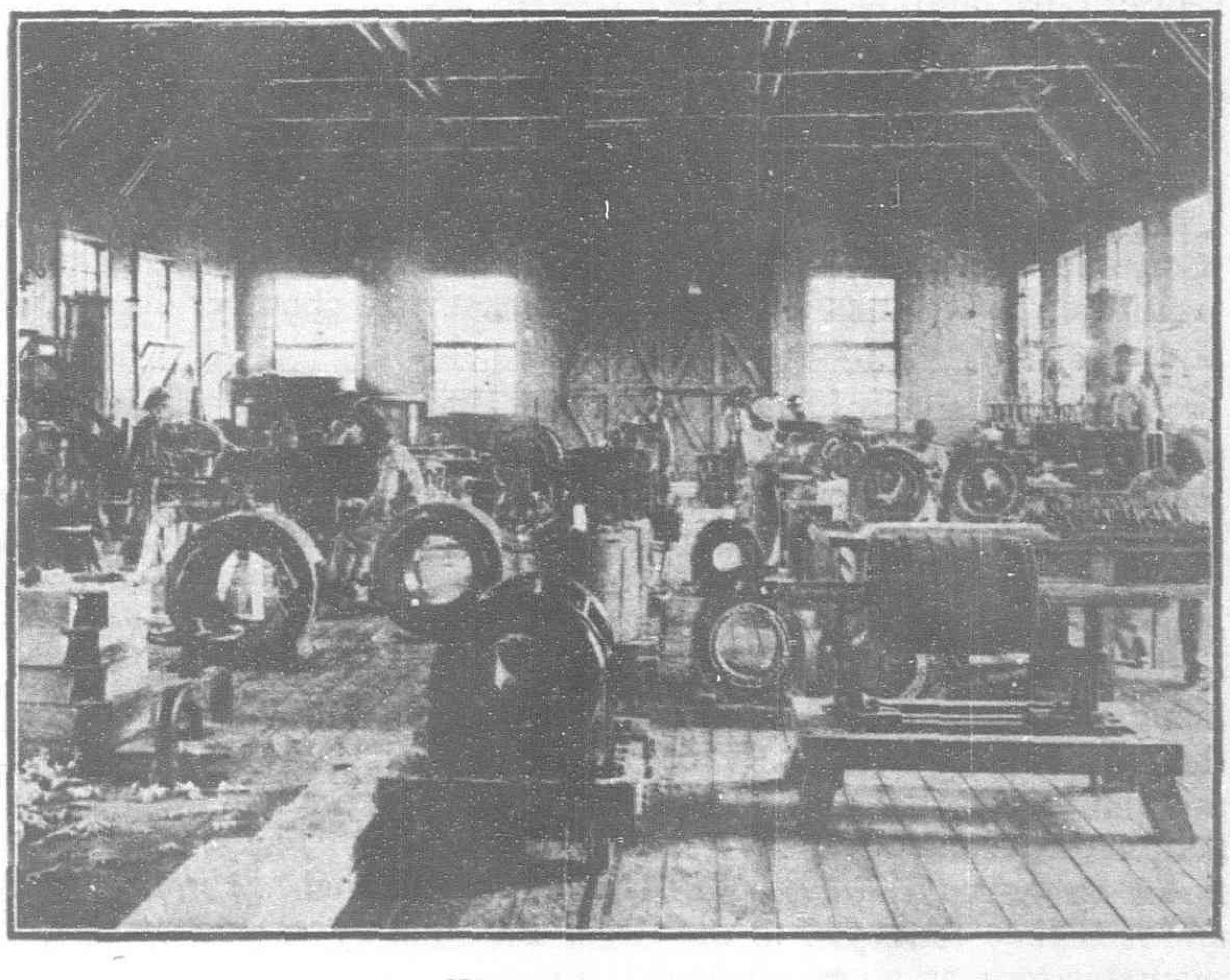


Boiler Room

The dynamos were supplied by Messrs. Dick, Kerr & Co., Ltd., and are compound wound direct current type, capable of giving an output of 400 kilowatts at 250 volts. The motor generator sets were manufactured by the Shibaura Engineering Works, Japan. Each set of these generators consists of one 370 B.H.P., 200 volt, three phase, 25 cycle induction motor, coupled to two 125 kilowatt 250 volt compound wound direct currency dynamos, at each end of the same shaft. They receive the current from the central electric station at Dairen, and one or two of these 250 kilowatt motor generators is operated to supplement the workshop power. The switch boards fitted along the west wall of the engine room consist of 23 panels



Assembling Transformers in the Electrical Department



Winding of Motors

for different sections, adequately and completely equipped in accordance with the most modern practice.

The air-compressing engines were manufactured by the Ingersoll Rand Co. They are of the duplex compound steam and compound air non-condensing type with interçooler, each capable of compressing air to 100 lbs. per square inch pressure at 80 to 100 lbs. per sq. inch pressure of steam. When running at 120 revolutions per minute, each engine has a piston displacement capacity of 925 cubic feet of free air per minute, with terminal air pressure of 100 lbs. per sq. inch, developing about 157 I.H.P. in its steam cylinders. The boilers generate steam sufficient to cover the supplies to the steam engines, steam hammers in the Smith Shop, and some 325 "Stanlock" heaters distributed in the shop building. The supply pipings for steam, compressed air, and automatic sprinkler system are carried in an underground closed main duct and branched off to the several buildings.

The Locomotive Weighing and Preparation Shed is situated at the northeast portion of the lay-out, 417 feet distant from the center of the Turntable. It is 42 feet wide and 160 feet long, and is equipped with a 12 tabled engine-weighing machine made by Messrs. W. & T. Avery & Co., Ltd., England.

Water Supply

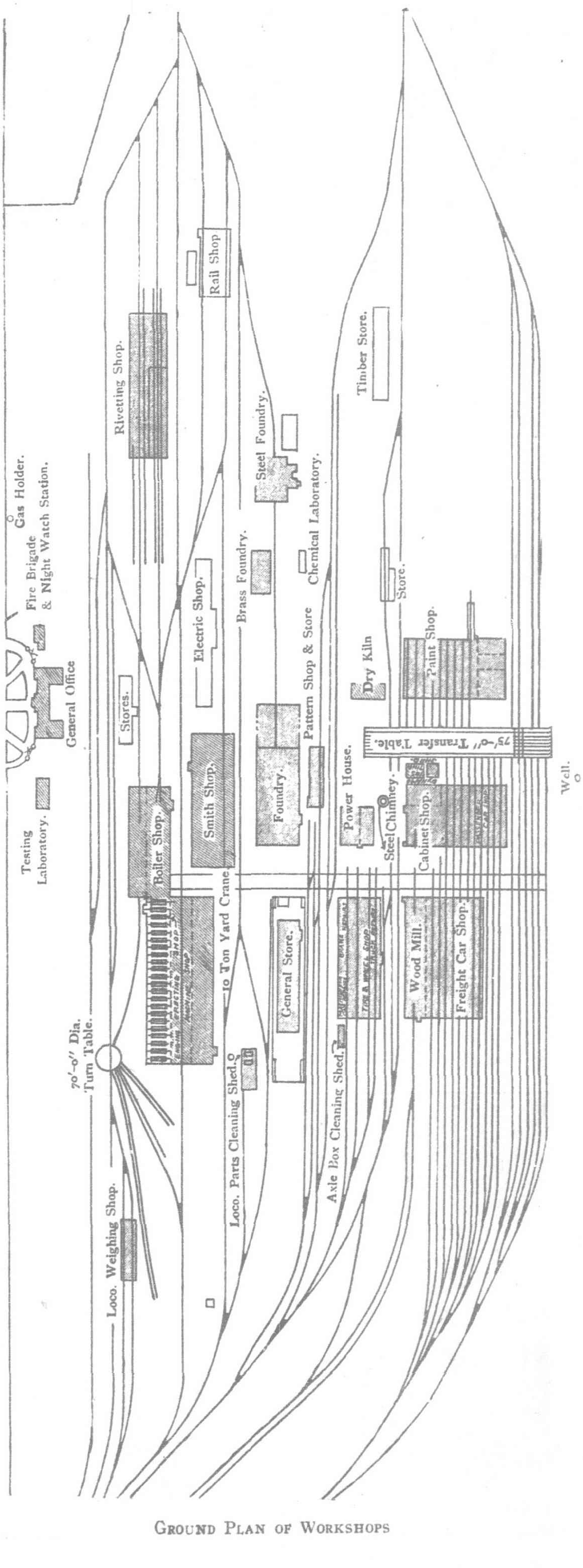
The supply of water to the Workshops and Colony is executed by an independent water works. The water sources consist of a number of wells sunk in the vicinity of the premises, from 20 to 30 feet in diameter and from 25 to 42 feet deep. The Pumping Station is situated at a distance of about 700 feet southwest of the Paint Shop. Its equipment includes two sets of Rees Roturbo pumps, each directly coupled to a 60 B.H.P. 3-phase A.C. motor, and capable of delivering a maximum quantity of 400 gallons of water per minute, against a maximum total head of 275 feet.

Sewage System

Waste water from the Workshops and Colony are discharged through glazed earthenware pipes, ranging from 4 inches to 18 inches in diameter, and are collected in a series of manholes connected by a main drain 24 inches in diameter, discharging into the Sewage System located along the eastern boundary of the Works enclosure.

It may be interesting to explain the Sewage System briefly. It is designed to treat an average dry weather flow of 150,000 gallons per day. The sewage is first admitted from the sewer into the screening chamber, which is fitted with a wrought-iron screen. Foreign and insoluble matter is arrested here, the sewage being allowed to pass over into the detritus tank, where the screened sewage is allowed to settle. The effluent then passes to a distributing channel which runs at the back of the septic tank and is connected thereto by means of submerged inlets regulated by disc valves. These septic tanks consist of eight sections, each 25 ft. long by 20 ft. wide with an average depth of 6½ ft. The floors are made sloping for the more convenient removal of the sludge, which can be valved off to the sludge tank. The tanks are covered with a galvanized sheet iron roof, and kept secluded from light and atmosphere. The effluent from the septic tanks is fed into a measuring chamber having a liquid capacity of 3,200 gallons.

The contents of the measuring chamber are held up by means of the Mather & Platt patent automatic valve until the above capacity is reached, when discharge takes place. From the measuring chamber the sewage is conveyed by means of a 5-in. cast-iron pipe to the filter bed. The bed is 50 ft. in diameter and 6 ft. high, and constructed of graded gravel and coal, with large-sized coal lumps as an outside wall, the whole being piled upon a sloping floor of concrete. The sewage is distributed over the surface of this filter bed by means of automatic rotating spreaders, which are driven round by the action of the sewage in issuing from them. The bed effluent flows by gravitation to graded concrete channels round the bed and is thence conveyed to the River Baranka by means of a 17" diameter mortar pipe.



GROUND PLAN OF WORKSHOPS

China's Finances in 1917

Unsettled Political Conditions Cause Excessive Military Expenditure and Block Reform Measures

The following outline of the state of China's finances during the year 1917 was published by the Peking *Leader* in its new year supplement, and was written by a correspondent having access to correct data. It should therefore be accurate, and for that reason we republish it as authoritative, doing so with the permission of the Editor of the new and enterprising paper:

It is a time-worn but nevertheless true saying of Wilson that finance is not mere arithmetic; finance is a great policy. Politics and finance can never be separated. If we wish to understand the finance of a country, we must not lose sight of its political conditions. When we study the budget of China, we are at once struck by the preponderance of the military expenditure. But this is only a phenomenon. Its explanation—and that for many others as well—lies in the existence of a cleavage between the North and the South. Therefore, in surveying the financial conditions of the past year, we should keep this fact unceasingly in view.

Dr. Chen Chin-tao's Program

Soon after Dr. Chen Chin-tao's accession to the Ministry of Finance in 1916, he made known his financial policy. In the memorandum embodying it, he first laid emphasis on the importance of recovering the financial *status quo ante* and then outlined his program of reform. In order to recover the *status quo* he proposed:

(1) To adopt a policy of retrenchment with regard to all expenditures, whether military or civil;

(2) To maintain the existing system of taxation;

(3) To ask the provinces to continue their contributions to the Central Government on the old basis; and

(4) To raise a foreign loan of $100,000,000, to be used in the following manner:

(a) $25,000,000 for resumption of specie payment by the Banks of China and of Communications;

(b) $20,000,000 for disbandment of troops;

(c) $5,000,000 for reorganization purposes of several provinces;

(d) $4,000,000 for purchase of brass "cash" and minting of new coins;

(e) $6,000,000 for improvement of means of communication; and

(f) $4,000,000 for administrative purposes.

As to Dr. Chen's program of reform, it was outlined under the following headings:

(1) Reorganization of the taxation system;

(2) Reform of the Budget system;

(3) Unification of the Treasury system;

(4) Reforms in connection with Public Loans;

(5) Currency Reform;

(6) Realization of State Control of the Sale of Tobacco and Wine;

(7) Reform of revenue-collecting agencies;

(8) Reform of central Banks; and several so-called "auxiliary" reforms, which were:

(a) Creation of a service for the Inspection of Revenue collection;

(b) State purchase of brass "cash";

(c) Reform in the method of auditing; and

(d) Codification of laws pertaining to finance.

Thus, with the advent of 1917, we found Dr. Chen Chin-tao already six months in the Ministry of Finance, long enough to see whether he was able to carry out his program full of good promises. But circumstances did not perhaps allow him to accomplish much. He was not able to realize his scheme of restoring the *status quo*, to say nothing of his various reforms. The policy of retrenchment was found impossible. Expenditures increased instead of being curtailed. Money was required to disband troops and other purposes. It was said that $800,000 was remitted to the Military Council of the South, besides $1,000,000 carried to Canton by the new civil governor of that province. Provincial contributions did not arrive as before.

Two Foreign Loans for $10,000,000

Even the plan of borrowing $100,000,000 failed to materialize. Two loans were concluded, besides some advances from the Deutsch Asiatische Bank. The first loan was Yen 5,000,000 from the Japanese corporation "Sin-Yah Company," secured on certain mining rights in the provinces of Hunan and Anhwei. This loan brought forth such a flood of protests that an alternative security in the form of brass "cash" melting profits had to be offered. The second loan was $5,000,000 supplied by the Continental and Commercial Trust Savings Bank of Chicago, secured on the tobacco and wine revenue.

The proceeds of such loans and advances, which did not amount to one fifth of the proposed $100,000,000 loan, were almost entirely spent in the resumption of specie payment by the Bank of China on October 26, 1916. It is now generally admitted that, although the intention of such a step may be laudable it was done in such a hasty way, when metallic reserve was not sufficient even for partial resumption of specie payment, that its subsequent collapse was inevitable and has done perhaps more harm than good to the credit of the institution.

A Financial Conference was called, composed of all the more important members of the Ministry of Finance, delegates of the Civil Governors, and Provincial Financial Commissioners or their delegates. It held its sessions from March 1st to the 17th. Its object, as stated in the official preamble, was to discuss the means of developing national wealth, abolishing bad taxes, and in short, improving the financial conditions of the country. Many important questions were in fact discussed and passed, such as the centralization of the Treasury system, reform of the provincial banks, preparation of Financial Accounts for the 4th fiscal year; but very little tangible result was achieved. It, however, pointed out a way that future Ministers of Finance may pursue in securing the coöperation of the central and provincial authorities in their endeavor to devise measures of financial reform.

The budget for the fifth fiscal year (July 1, 1916, to June 30, 1917) was brought before the Parliament on February 21 and its examination did not end till April 23. The Government was alive to the futility of such a belated budget, but thought it would serve as a model for the following budget. We give below a summary of the budget, which is styled the new fifth year budget, as distinguished from that of the same name prepared under the late President Yuan Shih-kai, who in 1915 altered the fiscal year system to make it coincide with the calendar year:

	*New 5th Year	Old 5th Year	3d Year	2d Year
Revenue				
I.—*Ordinary*	July, 1916 June, 1917	Jan., 1916 Dec., 1916	July, 1914 June, 1915	July, 1913 June, 1914
1. Land Tax	$90,105,784	$95,972,818	$76,859,060	$79,180,723
2. Customs Revenue	73,056.663	71,310,970	78,773,341	66,970,003
3. Salt Revenue ...	96,767,010	84,771,365	84,879,873	77,401,265
4. Tax on Commodities, Including Likin ...	42,719,194	40,271,368	34,175,656	36,876,823
5. Regular and Miscellaneous Taxes	34,768,432	32,341,704	28,000,424	33,725,227
6. Regular and Miscellaneous Duties	5,448.686	14,067,574	4,947,281	3,173,530
7. Income from Government Investment	2,083,401	2,621,261	4,063,483	7,849.648
8. Miscellaneous Income of Provinces	5,101,531	6,927,694	5,133,579	12,723,427
9. Income of Central Administration	1,374,648	1,635,464	4,620,775	...
10. Income Directly Received by Central Government ...	36,584,311	76,306,927	29,611,340	...
	$388,009,660	$426,237,145	$351,064,812	$317,900,646
II.—*Extraordinary*				
1. Land Tax... ...	$ 5,751,464	$ 1,580,695	$ 2,368,749	$ 3,222,889
2. Customs Revenue	706.885	847,359	629.716	1.254,280
3. Tax on Commodities ...	21,025	18,716	10,391	6.054
4. Regular and Miscellaneous Duties	3.911,410	4.496,333	...	132,829
5. Income from Government Investment ...	8,351	16,703	364.021	634,093
6. Miscellaneous Income of Provinces	91,610	338,253	1,575,024	10,115,868
7. Income of Central Administration	2.248,438	1.359,698	1,406,077	230,308 (Contributions)
8. Income Directly Received by Central Government	23,510,969	17,051,808	...	$ 164,269 (Salt Revenue)
9. Miscellaneous Income of Central Government...	8,100.000	...	...	...
10. Loans	24,291.468	20,000,000	25,082,398	$223.370,000
11. Advances from Banks	16.187,305	...	...	...
	$84,828,924	$45,709,565	$31.436,376	$239,130,590
Total Revenue...	$472,838.581	$471,946,710	$382.501,188	$557,031,236
Expenditures				
I.—*Ordinary*				
1. Foreign Affairs ...	$ 4,446,548	$ 3.276 677	$ 4,229,529	$ 3,293.115
2. Interior	42,570,109	49,653,982	42,672,290	39,618,149
3. Finance	61.792,970	53,531,625	23,383 898 29,960,079	210,345,180
4. War...	156,606,047	135.813.986	134,061,795	136,864.494
5. Marine	7,304,135	17,101.779	4,802.560	7.665,881
6. Justice	9.337,156	7,665,772	7,258,459	14,671.825
7. Education	4,433.893	12,611,583	3,276,904	5,207,215
8. Agriculture and Commerce ...	2,734.790	3,762,244	2,276.537	5,083.386
9. Communications	1,533,606	1,577.408	1,935,560	934,877
10. Mongolian and Tibetan Affairs	1,044,216	947,230	1,065,344	...
	$291,803,470	$285.942,280	$254.922,955	$423,684,126
I.—*Extraordinary*				
1. Foreign Affairs ...	$ 1,846,786	$ 826,141	...	$ 1,013,223
2. Interior	3,117,770	2,105,864	...	4,263,860
3. Finance	162.307,633	175,302,789	$ 98,564,793	181,568,614
4. War	10.711.333	6,438,727	3,526.282	26,910,518
5. Marine	847,434	102.758	10,000	1,307,014
6. Justice	28,610	45.572	...	370,312
7. Education ...	594,943	225,724	...	1,701,635
8. Agriculture and Commerce ...	1,279,496	376.792	...	959.735
9. Communications	116.833	112,783	...	457,843
10. Mongolian and Tibetan Affairs	94,276	40,000	...	...
	$181.035,114	$185,577.150	$102,101,075	$218,552,754
Total Expenditures	$472,838,584	$471,519.436	$351,024,030	$642,236,876

* No budget for the sixth Fiscal Year (July 1, 1917, to June 30, 1918) was prepared. That for the fifth (new) was proclaimed by a ministerial order to serve as such.

The above figures are only estimates, but they serve as a guide to the present conditions. The salt revenue leads in the list of sources of revenue while the land tax follows quite closely. The customs revenue shows a falling off as compared with the third year, but when we take into consideration the existence of the Great War, it must be regarded as very satisfactory. The item, "Income Directly Received by Central Government." is rather misleading and requires elucidation. It was made up in the following manner:

(1)	Stamp Duty	$5,864,400
(2)	Tobacco and Wine License Duty ..	2,012,852
(3)	Tobacco and Wine Tax..	14,350,456
(4)	Income from Tobacco and Wine Sale ..	12,134,986
(5)	Mining Duty	2,221,617
		$36,584,311

Customs and Salt Revenues, though not included under this heading, are also income directly received by the Central Government.

Provincial contributions do not figure in the budget as such, because they are the quota the provinces contribute to the Central Government according to some arrangement, after having met their own expenditures from their total receipts, and they are so to speak dispersed throughout the various items of the budget. They are similar in nature to the German matricular-beiträge.

Items of Expenditure

As regards expenditures, the Ministry of Finance, with its total expenditure ordinary and extraordinary, of $224,190,603, occupied the first place. But when the money provided for the amortization and interest payment of loans, which was $142,244,888 was subtracted, giving a residue of $81,945,715, that place was easily yielded to the Ministry of War, which took up $167,317,380. In fact, the percentage distribution of the expenditures has been calculated as follows:

(1)	Ministry of War	35 per cent
(2)	„ „ Finance, with provisions for „ „ Loans..	47 „
	Ministry of Finance without provisions for Loans..	17 „
	„ „ Finance without provisions for loans and also exclusive of allowances to the Imperial Manchu House	9 „
(3)	Ministry of Interior..	7 „
(4)	„ „ Justice	2 „
(5)	„ „ Education	1 „
(6)	„ „ Marine	1 „
(7)	„ „ Agriculture and Commerce ..	1 „
(8)	„ „ Foreign Affairs	·1 „
(9)	„ „ Communications less than ..	1 „
(10)	„ „ Board of Mongolian and Tibetan Affairs less than	1 „

The above figure for the Ministry of Communications does not include the receipts and expenditures of the railway lines, postal and telegraphic services, which have a special budget of their own, but only represents the expenses of the Ministry proper and educational institutions affiliated thereto.

Not long after the fall of Dr. Chen Chin-tao in April brought about by the notorious brass "Cash" smelting case, the country was on the verge of a civil war, heralded first by the question of China's declaration of war against Germany, and then developed through a cabinet crisis into a constitutional issue. The kaleidoscopic movement of events brought us to the attempted Imperial Restoration by General Chang Hsun on July 1st and its collapse on the 12th.

In the post-Restoration Tuan cabinet, Mr. Liang Chi-chao became the Minister of Finance. The legacy he had inherited was quite burdensome. Although we have no record of the actual cost of the Imperial Restoration to the State, it has been estimated that, among others, (1) Direct expenses of the Republican Expeditionary Army against Chang Hsun amounted to $1,000,000; (2) The disbandment of Chang Hsun's army and others accounted for about $200,000; and (3) Disbandment of temporarily increased troops, etc., required about $1,000,000,—thus bringing these three items alone to about $2,200,000.

It is also said that the Restoration Minister of Finance caused a fresh issue of copper notes to the value of $2,000,000, which had to be recalled in order to prevent a precipitate fall in the value of such notes.

Thus, in addition to an empty treasury, Mr. Liang Chi-chao found himself confronted with extraordinary requirements of some five million dollars. In trying to bring the two ends to meet, or at least as near as possible, Mr. Liang Chi-chao decided to adopt a stringent policy of retrenchment. By adjusting expenditures on a basis of realizable revenue, he formulated an Estimate for ten months, viz.; September, 1917, to June, 1918, for the Central Government. He reckoned the "matricular" contributions of the province at $6,000,000 and other receipts of the Central Government for the same period at about $70,000,000. The expenditures were divided into three groups:

(1) Military Expenses	$49,000,000
(2) Administrative Expense	20,000,000
(3) Other Expenses	6,000,000
	$75,000,000

But the equilibrium established in this estimate was not very stable and it did not require much exterior force to upset it. The Government's determination to use force in settling the dispute between the North and South had undoubtedly a most disturbing effect. Although we have no knowledge of the extraordinary expenditures thus incurred, it may be a conservative estimate to put it at $3,000,000. The relief of the flood sufferers of Tientsin and other districts again demands more money than was thought at first, and borrowing had to be resorted to for meeting such unexpected requirements.

Two New Loans

A loan of Y.5,000,000 was contracted on November 24 with the Sino-Japanese Industrial Development Company. It was secured on certain native customs receipts of the provinces of Shantung and Shansi and was to run for one year. The long deferred Grand Canal Loan was also signed in November last by Mr. Hsiung Hsi-ling, representing the Chinese Government, and Mr. Carey on behalf of the American International Corporation. The amount of the loan was $6,000,000 gold, to be supplied conjointly by the International Corporation for $3,500,000 and the Industrial Bank of Japan for $2,500,000. The work of irrigation of the canal, once begun, will afford relief of thousands of flood sufferers.

The most reliable source of income of the Central Government has been, as before, the salt revenue surplus released by the Group Bankers after meeting the interest charge of the Reorganization Loan and other charges. The amounts of salt revenue surplus released each month are as follows:

January	$4,500,000	
February	3,600,000	
March	5,000,000	
April	5,000,000	
May	4,400,000	
June	3,200,000	approx.
July	1,400,000	
August	3,400,000	
September	2,450,000	
October	6,500,000	
November	6,900,000	approx.
Total	$46,350,000	approx.

In the course of 1917, customs revenue surplus of Tls. 8,000,000 were also released.

Mr. Liang Chi-chao has long clamored for currency reform, and it was therefore to be expected that he should give it the foremost place in his financial program. Monetary condition in China is most chaotic. The silver tael, fictitious in places and real in others, varies in different localities. Thus, one Haikwan tael equals 1⅛ Tientsin tael, but 1.114 Shanghai tael. Silver dollars of various origins circulate together, exchangeable according to their contents of fine silver. Thus, we have not only silver dollars coined in different mints at different periods, but also foreign dollars, such as the Straits dollar, Spanish Carlos dollar, and the Mexican dollar. Our monetary system has adopted the silver standard, as provided by the Currency Law of 1914, but the *de facto* standard is still copper. Paper money is in a still worse situation. The notes of the Banks of China and of Communications do not circulate at par in Peking, while notes issued by some provincial banks are depreciated as much as 70 per cent.

Currency Reform

To bring order out of this chaos, Mr. Liang Chi-chao had prepared a thorough scheme of currency reform. It was divided into two parts, viz. (1) Unification of silver currency, and (2) Redemption of depreciated notes. The silver standard as adopted in the Currency Law of 1914 was to be maintained and enforced. There should be absolute uniformity with regard to the fineness, weight, and form of silver coins, and any silver coins in circulation found to deviate from the provisions of the law would be withdrawn, and recoined. Proper silver subsidiary coins were to replace the small silver coins at present in circulation. The depreciated notes of the provincial banks would be redeemed, either by means of the notes of the Bank of China or some other means, and the value of the Peking notes of the Banks of China and of Communications must also be ameliorated. The ultimate standard to be adopted, i.e., whether "gold exchange" or silver, was to be deferred for later determination, as, with the war going on, it was deemed premature to prophesy on the relative values of gold and silver.

In order to carry the above scheme into effect, a big sum of money must be required. But this could only be secured by borrowing. Negotiations for a second Reorganization Loan were begun with the Four-Power Group Banks in October last. When Mr. Wang Ke-min, the present Minister of Finance, succeeded Mr. Liang Chi-chao, he was reported to have said that, in the matter of currency reform, he would pursue the same policy as his predecessor. Thus, we may hope to see the realization in no distant future of the plan of currency reform.

Re-Entry of America

An interesting fact to be recorded in this connection is the intention, as expressed by the American Minister, of the American group to rejoin the Four-Power Group Banks and participate in the second Reorganization Loan for Currency Reform. As we know, the Americans were among the first to take an interest in our currency reform. It was at our request that Professor Jeremiah Jenks was sent over in 1903 to study the monetary problems of this country and his visit had undoubtedly given a great impetus to the demand for currency reform. The American Group was, moreover, greatly responsible in bringing about the Currency Reform and Industrial Development Loan Agreement of 1911, which they signed along with the British, French, and German Groups. The withdrawal of the American Group from the negotiations of the Reorganization Loan of 1913 having always been lamented, their intention in favor of a change of policy must therefore be welcome to everybody in the Far East.

The continual depreciation of the Peking notes of the Banks of China and of Communications is occupying the attentions of all people, great or small. Indeed, it is the most pressing of the problems of currency reform. Unless the banks are provided with a sufficient stock of metal, it is useless to attempt at specie payment. What is required is a gradual rise in the value of the notes. While limiting the supply by ceasing to make fresh issues, its demand may be increased by some artificial means.

It was with this point in view that the financial authorities decided to cancel the requirement of specie for payments in the railway service and to accept notes at par for such purposes, as well as for revenue collection in the provinces of Chihli, Honan, and Shantung, as well as the special districts of Chahar and Kwei-Suei. Other means have also been adopted, e.g., the acceptance at a better rate of the notes for remittance to other places. The effect of such measures has perhaps not been as great as one might have expected, but considering the actual political conditions, it may be said that they have been at least effective in keeping the value of the notes from falling any further.

An advance of Y.10,000,000, known as the first advance of the second Reorganization Loan, was made by the Yokohama Specie Bank on behalf of the Four-Power Group, and the money so advanced was spent in maintaining the value of the notes of the Bank of China. A second advance of another Y.10,000,000 was made on January 6 by the same bank on behalf of the same Group to the Chinese Government for the same purpose. The expenses incurred by the Bank of Communications in maintaining the market value of their notes have been met from the proceeds of a loan of their own.

In connection with the Bank of China one important event should be recorded. By a Presidential Mandate dated November 21, 1917, the Charter of the Bank of China was amended, which affected the Bank in the following manner:

(1) *Re* Capital: (a) Original Charter 1913—Amount $60,000,000, Government to subscribe half, on which one-third should be paid up.
(b) Amended Charter, 1917—Amount $60,000,000, of which $10,000,000 to be subscribed by the public, and the Government may take part in the subscription—this eliminating the statutory provision of the Government's holding half the shares of the Bank.

(2) *Re* Governor, Vice-Governor, Directors and Censors.
(a) Original Charter—Governor and Vice-Governor to be appointed by the President of the Republic; Directors and Censors, to be elected by the Shareholders' General Meeting.
(b) Amended Charter—Directors and Censors to be elected by the Shareholders' general meeting, and the Board of Directors to elect two Directors as Governor and Vice-Governor respectively.

(3) *Re* Tenur of Office of Governor and Vice-Governor—
(a) Original Charter—Tenure of Office of Governor and Vice-Governor, five years that of Directors, four years, etc.
(b) Amended Charter—Tenure of Office of Governor and Vice-Governor same as other Directors, viz., four years.

It may be seen from the above that the motive behind the Amendment was to make the Bank of China less "governmental."

Abolition of Likin and Reform of Tobacco and Wine Revenue System

Besides the currency reform, two other reforms figured most prominently in the program of Mr. Liang Chi-chao. The first was the abolition of likin. It is well known that the existence of likin acts as a great hindrance to the development of trade and industry. But, as it brings to the State an annual income of $20,000,000, no one is bold enough to advocate its unconditional abolition. Some other source of revenue must be found to make good the deficit to be caused by its abolition. The institution of a Production and Destination Tax is generally considered to be a good solution. Mr. Liang Chi-chao had the intention of initiating the reform in a few provinces and gradually extending it to others.

A thorough reorganization of the Tobacco and Wine Revenue was another reform contemplated by Mr. Liang. After having incorporated the then independent Bureau of Tobacco and Wine Revenue into the Ministry of Finance, the law on tobacco and wine was amended to ensure an effective control by the States over the sale of the two commodities. As existing at present, there are five different imports on tobacco and wine, more or less duplicated, and it was the desire of Mr. Liang to amalgamate them into one or two simple taxes. This would benefit the consumers as well as the State as, in matters of taxation, simplicity means economy.

As the declaration of war against Germany and Austria has profound influence upon China's political status, so has it great effects upon her financial conditions. All claims of repayment of debt by Germany and Austria were *ipso facto* stopped or suspended on the declaration of war. The following lists give a summary of German and Austrian claims:

I. German Claims

(1) Arising from Treaty—According to the Peace Protocol of 1901, China was to pay to Germany an indemnity of mks. 275,165,423.33, to be paid in Shanghai by monthly installments of mks. 1,247,610.22.

(2) Arising from Agreement—i.e., Advances by the Deutsch Asiatische Bank, debts due to Carlowitz, Driederichssen, and other firms, about $10,606,970.

(3) Arising from agreement entered with Germans and subjects of some other nations—monthly payment of principal and interest on:

(a)	British-German Loan of 1896	£40,279-1¾
(b)	British-German Loan of 1898	£34,801 6-8
(c)	Reorganizatian Loan of 1913	£20,833 6-8

II. Austrian Claims

(1) Arising from Treaty—According to the Peace Protocol of 1901, China was to pay to Austria an indemnity of kr. 14,394,091.40, and the monthly payment of principal and interest for 1917 was kr. 65,263.34.

(2) Arising from agreement.

(a)	Arhnold, Karberg Loan II	£360,000
(b)	Arhnold, Karberg Loan III	£200,000
(c)	Austrian Loan I	£800,000
(d)	,, II	£1,333.500
(e)	,, III	£333.600
(f)	,, Treasury Bills	£1,139,314-10-8
(g)	Other Loans	£49,374-10-2

Upon the declaration of war, the Deutsch Asiatische Bank was also taken over by the Chinese Government for liquidation.

As a practical demonstration of friendly attitude towards China on her declaration of war against the common enemy, the Allied Powers agreed to defer for five years the payments of the Boxer indemnity. The annual quota of indemnity payment to the different allied Powers is as follows:

(1)	Russia	$7,093,282,757
(2)	Japan	1,892,327,717
(3)	Great Britain	2,754,185,113
(4)	Portugal	50,191,773
(5)	Belgium	461,620,014
(6)	Italy	1,448,189,837
(7)	France	3,856,374,837
		$17,556,172,048

Russia, owing to her preponderant share, only agreed to defer one third—thus bringing the annual deferment down to about $13,000,000.

Tariff Revision and New National Tariff

The Allied Powers—and also America—further agreed to revise the customs tariff on the basis of an effective 5 per cent. A commission on Tariff Revision composed of delegates of all the Powers concerned is at present sitting in Shanghai. It has been estimated that as the result of the revision, the customs revenue may very nigh be doubled.

Meanwhile, a new National Tariff was promulgated by a Presidential Mandate on December 25. It was to apply in our trade with subjects of non-treaty nations. The rates are fixed as follows:

(1)	Luxuries	30 p.c.—100 p.c. *ad valorem* duty
(2)	Useless Goods	20 p.c.—30 p.c. ,,
(3)	Useful Goods	10 p.c.—20 p.c. ,,
(4)	Necessary Goods	5 p.c.—10 p.c. ,,

It is true that the financial conditions of China as presented by the above survey of 1917 does not warrant us taking a very optimistic view of the future. We still find the unfortunate phenomena of undue preponderance of military expenditure, financial impotence of the Central Government, chaotic state of monetary affairs, and the general aridity of measures of reform.

But these phenomena are only transitory, which will disappear when the root of the evil is removed. It is the unsettled political conditions that have caused the apparition of such phenomena, and such conditions are in turn caused by the cleavage still existing between the North and the South. As, however, there is no radical difference—whether racial, linguistic, religious, or even political—that could keep them permanently apart, the time will not be very distant when this cleavage will disappear. Then we shall find our finance, along with other things, restored to its normal state.

China's Salt Revenue

Accounts for the Year 1915

The belated accounts of the Chief Inspectorate of the Central Salt Administration for the year ended December 31, 1915, have now been issued. They constitute the third statement of accounts so far published. We have always hoped to see the bare figures of these accounts relieved by some full message of explanation, but like previous statements, this one contains little in words to guide the layman. We understand, however, that a special and full report of the origination and work of the Administration is being prepared, and we trust that it will ultimately be made available to bondholders and others interested in this source of Chinese revenue.

A glance at the accounts for 1915 discloses that the collections of revenue in the various salt districts increased by some 8¾ million of dollars, while the Transportation Offices show a falling off of one million dollars, out of the total revenue of $75,993,573 received. Considering the fact that the country was supposed to be at peace during the period dealt with, the increase is not as large as might have been expected. This will probably be explained, however, when the report for this year is published. The amount paid over for the Boxer Indemnity and for other charges against the salt was 15½ million more than in 1914, while sums released to the Chinese Government were slightly over 3¾ million dollars less.

The balance held by the Group Banks at the end of the year amounted to the huge sum of $28,477,628. This item certainly requires some explanation, for it hardly seems justifiable that so much of the country's resources should be tied up instead of being made available for the general purposes of the Government.

The contributions to the Customs towards the Boxer Indemnity were 10¼ million dollars in excess of 1914, which is probably due to the fact that there was a fair falling off in Customs revenue during the year, but matters should have adjusted themselves later by continued increase of Customs revenue and the rise in exchange.

The cost of administration does not show any material rise, being at the extremely moderate figure of $4,989,000, though, if compared with the actual revenue collected by the District Inspectorates it would seem a little high, especially so far as the Salt Commissioners, their sub-offices, and preventive service are concerned. We notice that the expenses of the Chief Inspectorate show an increase of over $30,000 when compared with the previous year, but this is possibly due to the bonus which, as reported in the local Chinese papers at the time, might have been paid to the staff!

One weak spot disclosed in the accounts is the large sums which appear to have been withdrawn by the provincial authorities. Such a condition should certainly not have been allowed to exist, and so long as the Central Government is not made the sole authority for receiving any surplus revenue after all obligations are met—eventually paying over what sums it may deem necessary to any of the provinces—so long will its hold be weak and detrimental to the efficient control of the various Tuchuns. The Loan Agreement distinctly provides that all salt revenue should be collected and paid over to the Group Banks, and while it is already a matter of history that the various Legations have at times prevented the paying over of surplus revenue it seems they have lacked in judgment in not having taken a more decided stand with regard to the growing practice of the officials of "independent" provinces diverting the salt revenue to their own purposes. If this was not brought to the attention of the Legations at the time it was certainly an error on the part of those responsible.

The balance in the Bank of China (which is presumably what is meant by the term "collecting bank" in the accounts) exceeded six million dollars, which appears a rather large amount to be retained, but when the accounts for 1916 are published it will be possible to see how far this has been remedied.

It is gratifying to notice that the cash held in the various offices shows a considerable reduction, although it would appear at a glance that some could be still further reduced. As the great administrative work continues this will no doubt diminish to a negligible sum.

With regard to the Government Transportation of Salt the accounts on the whole show a more satisfactory state of affairs, the gross revenue accounted for being much larger than in the preceding year. Although the sums outstanding may appear to be large from the accounts it is indicated that they represent revenue still receivable against large quantities of salt shipped to nonproducing provinces.

Following are statements, which speak for themselves:

Comparative Statement of Receipts and Disbursements of Revenue (1914-15)

Receipts

	1914	1915
Balance at 1st January:		
Cash in Various Offices	$ 544,918.23	$ 2,720,875.08
Cash in Collecting Banks...	756,745.09	834,717.29
Transfers in Transit to Group Banks...	1,137,070.29	186,600.48
Cash in Group Banks	11,002,219.78	17,178,210.71
Revenue Collections per District Inspectorates	50,908,402.77	59,727,870.17
Miscellaneous Receipts per District Inspectorates	—	8,552.02
Special Government Withdrawals Refunded	—	1,092,724.52
Remittances from Government Transportation Offices	15,961,532.80	14,967,373.49
Interest Credited by Group Banks	231,825.03	197,052.89
District Inspectorate Suspense (Advances on Account of Duty, etc.)	1,045,888.24	—
Total	$81,588,602.23	$96,913,976.65

Disbursements

	1914	1915
Administration Expenses Defrayed... ...	$ 5,148,039.46	$ 5,100,373.41
Transfer Charges and Loss by Exchange...	*3,024,745.67	1,023,050.92
Special Government Withdrawals	73,793.53	—
Charges and Obligations Secured on Salt Revenue...	21,106,572.99	34,599,082.38
Releases to Government	31,304,818.22	27,523,066.47
Miscellaneous Withdrawals	10,228.80	—
Miscellaneous Charges	—	55,551.00
District Inspectorate Suspense	—	135,223.59
Balance at 31st December:		
Cash in Various Offices	2,720,875.08	1,179,223.44
Cash in Collecting Banks	834,717.29	2,671,419.44
Transfers in Transit to Group Banks...	186,600.48	300,919.41
Cash in Group Banks	17,178,210.71	24,326,066.59
Total	$81,588,602.23	$96,913,976.65

Comparative Statement of Salt Revenue Deposited in and Withdrawn from the Group Banks (1914 and 1915)

Deposits

	1914	1915
Balance at 1st January		
In Group Banks	$11,002,219.78	$17,178,210.71
In Transit Between Group Banks ...	477,807.05	150,275.10
Proceeds of Salt Revenue	60,409,675.75	69,277,536.42
Interest Credited by Group Banks ...	231,825.03	197,052.89
Total	$72,121,527.61	$86,803,075.12

---

* Mainly due to acceptance of depreciated Canton notes.

Withdrawals	1914	1915
Charges and Obligations Secured on Salt Revenue:		
(1) Anglo-German Loan of 1898 ...	$ 2,700,024.61	—
(2) Chinese Indemnity of 1901 ...	13,505,833.75	$23,787,463.37
(3) Hupeh Provincial Bonds of 1909	99,561.15	149,343.22
(4) Chihli Provincial Bonds of 1910	725,973.90	731,128.00
(5) Chinese Government 5% Gold Crisp Loan of 1912	4,075,179.58	2,998,885.11
(6) Chinese Government 5% Gold Reorganization Loan of 1913.	—	6,932,262.68
	$21,106.572.99	$34,599,082.38
Releases to Government	31,304,818.22	27,523,066.47
Transfer Charges and Loss by Exchange ...	2,371,421.79	272,744.05
Miscellaneous Withdrawals	10,228.80	22,991.00
Balance at 31st December:		
In Group Banks	17,178,210.71	24,326,066.59
In Transit Between Group Banks ...	150,275.10	59,124.63
Total	$72,121,527 61	$86,803,075.12

Comparative Statement of Revenue and Expenditure in the District Offices 1914 and 1915

Balance Brought Forward:

Debtor Accounts	1914	1915
Revenue Receivable	$2,147,823.01	$1,699,214.10
Cash in Various Offices	544,918.23	2,720,875.08
Cash in Collecting Banks	756,745.09	834,717 29
Suspense	—	—
Special Government Withdrawals ...	1,248,330.99	1,322,124.52
	$4,697,817.32	$6,576,930.99
Less Creditor Accounts.		
Expenses	$451,257.07	$ 200,271.85
Sundry Creditors	—	1,045,888.24
	$451,257.07	$1,246,160 09
Revenue Receivable		
Direct Duty...	$44,013,777.58	$53.776,778.61
Miscellaneous Revenue	6,440,016.28	5,766,375.52
Miscellaneous Receipts	—	$8,552.02

Quantity of Salt Released in Ssu-ma Scale Piculs...	$28,926,603.00	$28,754,619.00
Total Dollars...	$54,706,354.11	$64,882,477.05

	1914	1915
Administration Expenses Incurred ...	$ 4,897,054.24	$ 4,989,770.11
Transfer Charges and Loss by Exchange	653,323 88	750,306.87
Transfers to Group Banks	43,825,205.09	54,515,632.33
Miscellaneous Charges	—	32,560.00
Balance Carried Forward:—		
Debtor Accounts		
Revenue Receivable	$1,699,214 10	$1.514.498.05
Cash in Various Offices	2,720,875.08	1,179,223.44
Cash in Collecting Banks	834,717.29	2.671,419.44
Suspense	—	—
Special Government Withdrawals ...	1,322,124.52	229,400.00
	$6.576,930.99	$5.594.540.94
Less Creditor Accounts.		
Expenses	200,271.85	89,668.55
Sundry Creditors	1,045.888 24	910,664.05
	$1,246,160.09	$1,000,333.20
Total ...	$54,706,352.11	$64,882,477.05

STATEMENT OF SALT REVENUE FOR 1917

The following is the statement of salt revenue deposited in and withdrawn from the Group Banks during the year 1917:

Deposits		
Balance at 1/1/17:		
In Group Banks	$18,593.717.82	
In Transit Between Group Banks ...	950,086.85	$19,543,804.67
Proceeds of Salt Revenue		70,627,249.62
Interest Credited by Group Banks		258,903.42
Chinese Indemnity of 1901—Part of 1916 Contributions Refunded by Maritime Customs		5,474,502.50
Miscellaneous Withdrawals refunded ...	44,656 40	
Less Miscellaneous Withdrawals ...	20,111.52	24.544.88
Total ...		$95,929,005.09

Summary of Statements Showing the Financial Result of the Operations of the Government and Other Transportation and Collecting Offices, During the Year 1915

Name of Office	1. Total Revenue to be accounted for by the Offices.	2. Establishment Expenses and cost of Preventive Service.	3. Sundry Payments and expenses and funds in deposit with local Banks.	4. Special withdrawals by Provincial Authorities, etc.	5. Advance payments of duty made to the District Inspectorates and payments of duty received through the Salt Commissioner.	6. Amount transferred to the Group Banks direct by the Transportation Offices.	7. Balance outstanding on the 31st December, 1915, still to be accounted for.
Four Yangtze Transportation Offices							
Hupeh	$7,124,376.96	$259,956.82	$410,004.75	—	$1,314,277.13	$2,711,549.99	$3,947,393.02
Hunan	11,698,941.79	370,851.05	319,420.24	$522,660.00	2,670,800.23	4,332,476.93	6,956,698.95
Kiangsi	5,733,584.18	151,850.01	19,871.20	428,726.74	1.739.857.79	2,662.634.98	2,721,517.16
Anhui	3,082,520.37	160,620.23	74,697.13	851.654.17	1,406,328.84	1,689,338.31	1,195,280.09
Total ...	$27,639,423.30	$943,278.11	$823,993.32	$1,803,040.91	$7,131,263.99	$11,396,000.21	$14,830,889.22
Collecting Offices							
Ichang	$3,123,923.83	$51,284.61	$301,178.57	—	—	$2,545,008.39	$226,452.31
Shasi	246,078.52	53,057.34	—	—	—	100,764.72	92,256.56
Mongolian Salt Office	399,087.38	130,281.71	1,426.00	—	—	211,000.00	56.379.67
Huating	344,270.26	50,998.55	29,296.94	—	—	100,000.00	163.974.77
Total ...	$4,113,359.99	$285,622.21	$331,901.51	$ Nil	$ Nil	$2,956,773.11	$539,063.31
Government Transportation Offices					Payments of duty to the District Inspectorates for salt transported		
Kihei	$7,224,849 94	$375,235.79	$1,317,948.47	$145,906.95	$92,037,160.00	a. $100,000.00	$3,248,598.73
Chinpei	993,464.27	88,178.32	309,895.85	—	147,340.00	202,950.00	245,100.00
Kwangsi	803,088.56	103,535.71	23,305.43	—	374,468.97	280,000.00	11,778.45
Kweichow	1,067,777.54	54,054.90	437,124.17	526,598.47	—	50,000 00	956,466.78
Hotung	127,896.30	—	—	—	—	—	b. 127,896.30
Chengyangkuan ...	234,515.60	—	—	—	—	81,650.17	c. 152,865.43
Su Wu-Shu	85,071.21	—	—	—	66,363.68	—	d. 18,707.53
Total ...	$10,536,663.42	$621,004.72	$2,088,273.92	$672,505.42	$2,625,332 65	$714,600.17	$4,761,413.22
Grand Total ...	$42,289,446.71	$1,849,905.04	$3,244,168.75	$2,475,546 33	$9,756,596.64	a $15,067,373.49	$20,131,365.75

a. Paid into the Bank of China, Peking, for Chief Inspectorate expenses. *b.* Collected in 1916 and merged in the account of the Hotung District Inspectorate. *c.* Balance collected in 1916 and merged in the account of Haichow District Inspectorate. *d.* Collected in 1916 and merged in the account of the District Inspectorate and accounted for by the District Inspectors and the balance written off.

Withdrawals

harges and Obligations Secured on Salt Revenue:			
(1) Anglo-German Loan of 1898 ...		—	
(2) Chinese Indemnity of 1901 ...*vide contra*		—	
(3) Hupeh Provincial Bonds of 1909	$	50,048.01	
(4) Chihli Provincial Bonds of 1910 ...		725,973.89	
(5) Chinese Government five per cent Gold Crisp Loan of 1912		1,740,887.61	
(6) Chinese Government five per cent Gold Reorganization Loan of 1913 ... ...$9,004,869.40			
Less Installments for July-November, 1917, Refunded by Maritime Customs $3,384,479.86		5,620,392.54	
(7) Hukuang Railways Loan of 1911		$376,094.13	$ 8,513,396.18
Releases to Government			68,613,370.22
Transfer Charges and Loss by Exchange			436,635.47
Balance at 31/12/16:			
In Group Banks		$17,983.391.93	
In Transit Between Group Banks ...		382,211.29	18,365,603.22
Total ...			$95,929,005.09

In other words the *net* Salt Revenue paid into the Group Banks during the year 1917 amounts to $70,627,249.00, which shows a decrease of $1,813,310.00 as compared with the *net* Revenue realized in 1916 ($72,440,559.00), but is an increase of $1,349,713.00 as compared with the *net* Revenue realized in 1915 ($69,277,536.00).

All obligations secured on the Salt Revenue were fully met and the release of surplus funds handed over during 1917 to the Chinese Government amounted to $68,613,370.00.

The Railway Situation in Russia and Siberia

A much more optimistic view of the Russian railway situation than that which has become prevalent has been published in the *Railway Age Gazette* by Henry Miller, formerly operating vice president of the Wabash, who went to Russia in June as a member of the United States Railway Advisory Commission, and has just returned with a report. The commission, of which John F. Stevens is chairman, was accredited by the State Department and was sent to Russia to advise with and assist in every practicable way in the handling of the grave transportation problems which the war had thrust upon the Russian railway system. It has made a thorough investigation of the situation, made many suggestions for improved methods which have been adopted by the Russian railway authorities and has arranged for the dispatch of railway materials and supplies from this country to Russia. At its recommendation, the Russian Railway Service Corps, consisting of three hundred and fifty experienced railway operating and mechanical officials, has been recruited in this country under the direction of S. M. Felton, director general of railways, and sent to Russia to assist in the operation of the railroads and to act as instructors to Russian railway men for the purpose of building up a more efficient operating organization.

Some interesting information regarding the present condition of the lines was given by Mr. Miller in an interview while he was in Washington making his reports to the railway and governmental authorities.

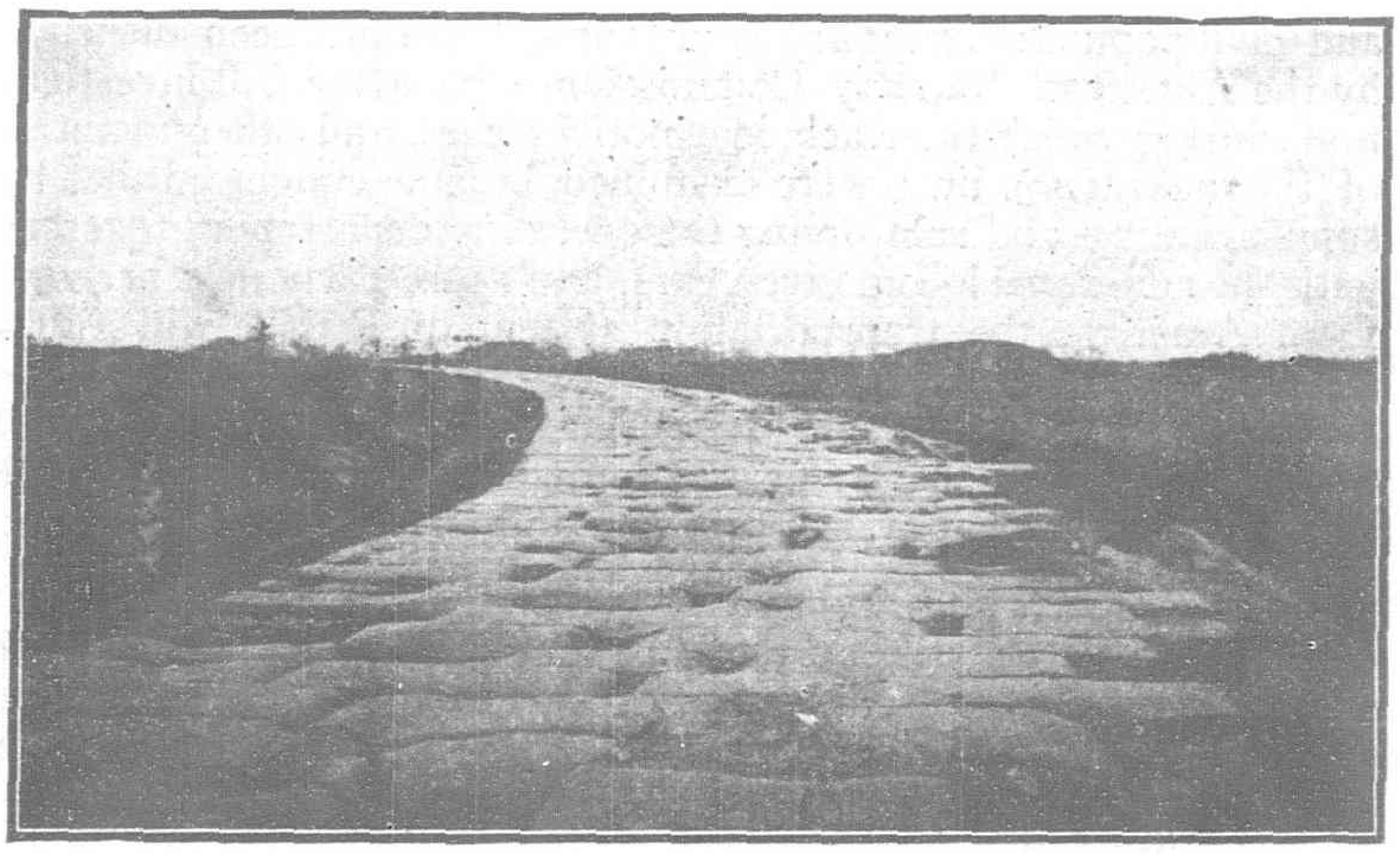
"Russia is blessed with abundant crops and ample live stock and other foods and has resources beyond conception," said Mr. Miller. "The fear that the railways will fail to keep the army and civil population supplied is unfounded and has been dispelled by the American Railway Commission, who, after full investigation, during which the track, locomotives, cars, and other facilities of the main trunk lines were examined, became convinced that by supplementing and reinforcing the operating department, together with the additional locomotives, cars, and spare parts now arriving from America, the transportation system of Russia will fulfil all reasonable requirements. The condition of the railway has been grossly exaggerated. Like our own, they are at present overtaxed with unusual traffic, but in many respects they are quite all right and their physical property and terminals are excellent.

"The reports showing twenty-five per cent to thirty per cent of the locomotives 'sick' on the Russian railways is a fiction of the statistics largely, caused by the order to classify as 'sick' those needing repairs requiring withdrawal from service twelve hours or more, thus including mere running repairs. A rational analysis of the situation on the Trans-Siberian Railway reveals not exceeding fifteen per cent of the locomotives 'sick' under a proper classification based on the practice of American railways."

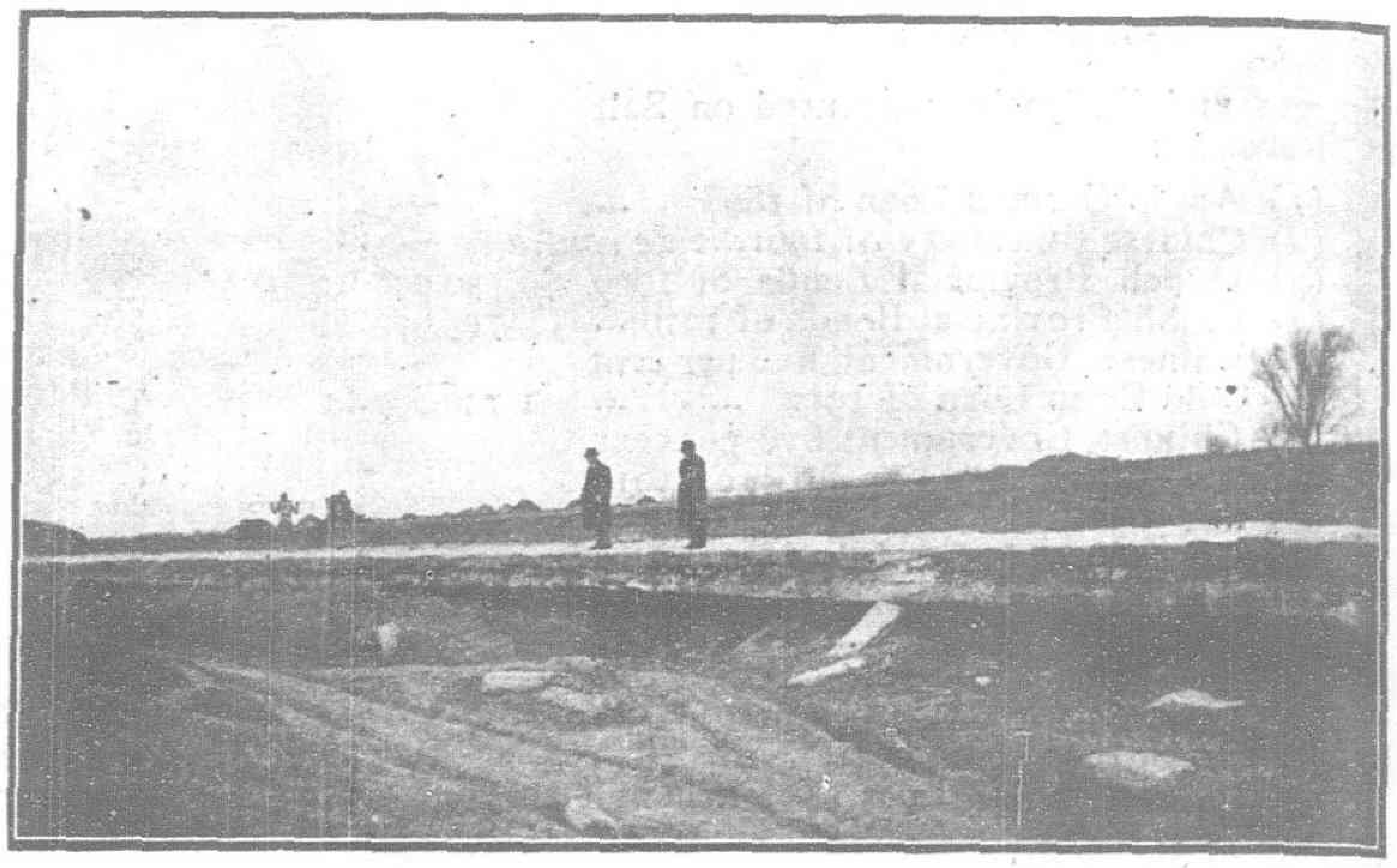
"As far as the railways are concerned," said Mr. Miller, "we found the great problem to be a question of operation. The physical properties are all right. As one of the first steps, we arranged to divide the railroads into divisions of approximately three hundred miles, each in charge of a superintendent and a staff of thirteen assistants, including trainmasters, train dispatchers, master mechanics, traveling engineers, etc., in order to provide the close supervision necessary to promote efficiency.

"Russia has approximately 50,000 miles of railroad, of which about sixty per cent is owned by the Government and about forty per cent privately owned. The railroads have about 20,000 locomotives, whose average age is twenty-four years, most of them being compounds. About ten per cent are wood burning, five per cent oil burning, and the balance coal burning. They have an average tractive force of 18,000 lb. We found about fifteen per cent of the locomotives in bad order. They also have 580,000 freight cars of an average capacity of about sixteen tons, of which we found about eight per cent in bad order. The freight cars, both on the Government lines and the privately-owned lines, are pooled and handled by a central car distributing office at Petrograd. The practice is to apportion a certain number of cars monthly to each of the lines based upon their traffic requirements as determined by previous experience. About twenty per cent of their freight cars have brakes and only the 13,000 American-built cars are equipped with air brakes. Braking is done by hand, the practice being to use a brake van for every fifth car in a train and to station a brakeman at each brake.

"The Trans-Siberian line, including a detour line just constructed via the Amur River, is practically all double-tracked from Vladivostok to Omsk, a distance of about 4,000 miles. At Omsk the line divides in the form of a Y with branches extending to Petrograd and Moscow and the traffic is correspondingly divided, so the Trans-Siberian line is practically equivalent to a complete double track line. The Russian railroads are operated after the German system, which differs from the American system in that train movements are not governed by time-tables or train schedules but trains are classified and their rights on the road are governed, by the conductors and enginemen. Time-tables are only for the information of the public. There are no train rules or other operating rules corresponding to the American code of train rules and no train orders are issued except for slow orders. Trains are operated by the staff system on single track and by the telegraph manual block system on double track. The absolute block system is used in spacing trains. There is almost an entire absence of what in America is termed the operating department, and it is this void that the Amerian commission has attempted to fill in order to increase the efficiency of the railways. It is for this purpose that the corps of three hundred and fifty experienced railroad men from the United States has been sent to Russia to carry out the recommendations made by the commission and to act as instructors to the Russian railway men in American railway operating methods. It is hoped that by this means it will be possible to build up an efficient organization from among the Russian railway men themselves."



A TYPICAL SECTION OF THE OLD STONE HIGHWAY BETWEEN PEKING AND TUNGCHOW, BUILT BY THE MINGS FIVE HUNDRED YEARS AGO



VIEW SHOWING THE GRANITE SLABS SET ON A LIME CONCRETE BASE. THE EARTH FOUNDATION HERE HAS BEEN WASHED OUT AND THE LIME SUB-BASE SUPPORTS THE GRANITE SLABS, SHOWING A WONDERFUL PRESERVATION

Proposed Peking-Tientsin Highway

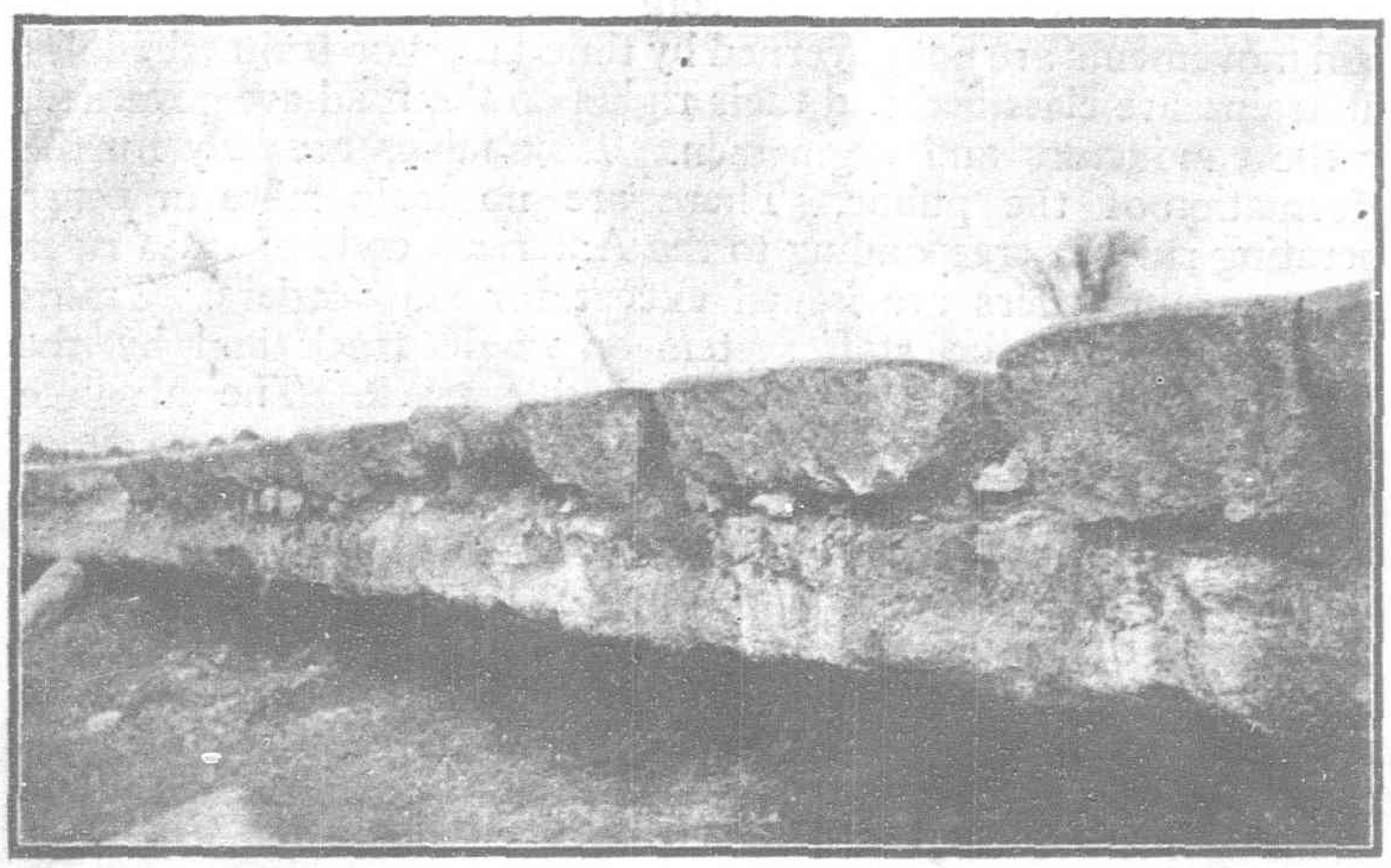
R. A. WHITE, ENGINEER IN CHIEF

IN previous issues we have mentioned that the American Red Cross Society, donated Gold $75,000 in order to afford relief to the sufferers from the floods in Chihli province, China. The local Red Cross Committee took up the question of how this donation was to be expended, and it was decided that relief could best be given permanence by undertaking some constructive work or other which would serve the dual purpose of benefiting the country and at the same time affording means of livelihood through the winter months to the thousands of hungry and homeless refugees.

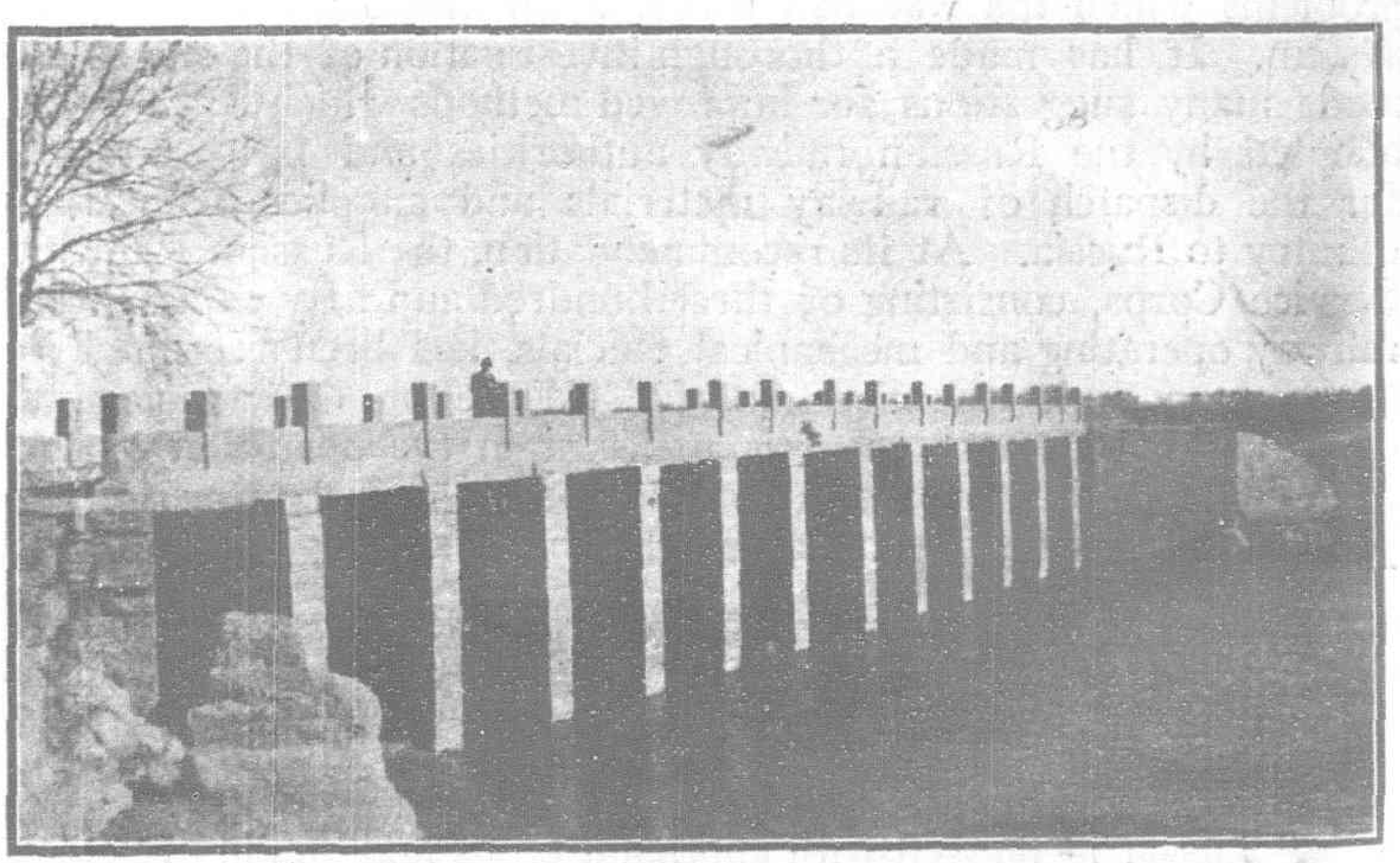
Arrangements were consequently made with Mr. Hsiung Hsi-ling, Director-General of Flood Relief and Conservancy, to construct a highway between Peking and Tientsin, the Chinese Government promising to supply Mex. 150,000 as their share of the cost, making in all, a total of nearly Mex. 250,000 with which to begin operations. Mr. Kungpah King, was made Managing-Director, and Mr. Ma, a Chinese Engineer, was chosen as Chief Engineer of the Highway work, while an advisory engineering committee composed of Mr. G. A. Kyle, Chief Engineer of the railway now being surveyed by the Siems-Carey Railway and Canal Company, and Mr. R. A. White, of the firm of E. W. Frazar and Co., were appointed to coöperate and help in the project as advisers.

The recruiting of the men most in need of help was undertaken by several missions located in the districts most affected by the floods. In all 3,500 men were collected. They were sent to Peking and Tungchow for work on the section between those two places, and there they were outfitted with clothes and given quarters along the highway.

A reconnaissance survey was made by Messrs. Kyle and White in November covering the proposed route from Peking and Tungchow thence following the Hu-ho to Yangtsun, and thence to Tientsin, a total distance of 82 miles. It was found that the money in hand was only about half enough for the entire project, providing the work were carried out under favorable conditions. In other words it was estimated that the lowest possible figure a sixteen foot macadam highway could be built for was $530,000. When the matter of construction was finally settled it was decided that for the present, work would only be undertaken on the Peking-Tungchow section, a distance of fourteen miles.

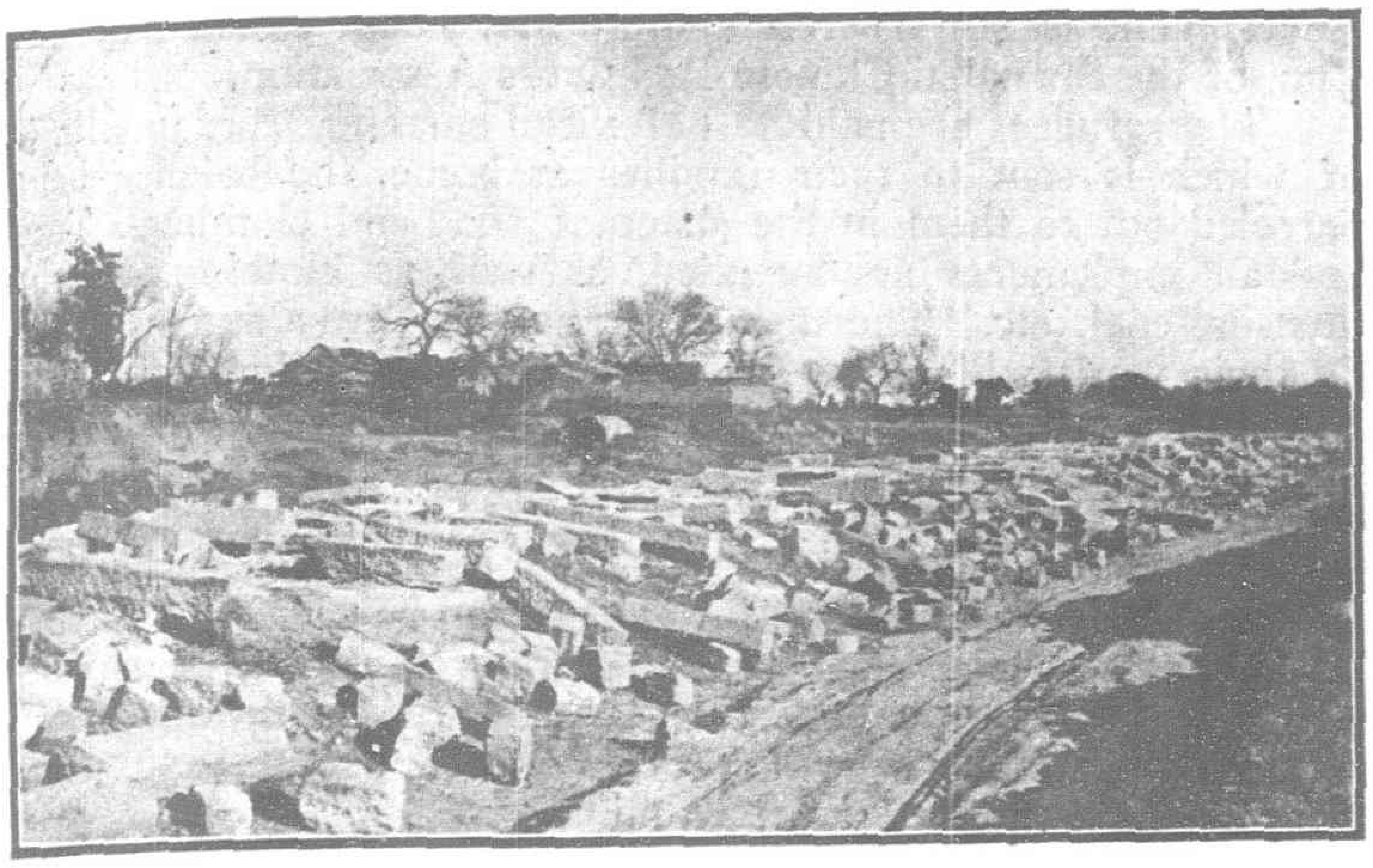


NEAR VIEW SHOWING GRANITE SLABS RESTING ON LIME CONCRETE SUB-BASE LIME IS SO HARD IT IS DIFFICULT TO REMOVE BY PICKS

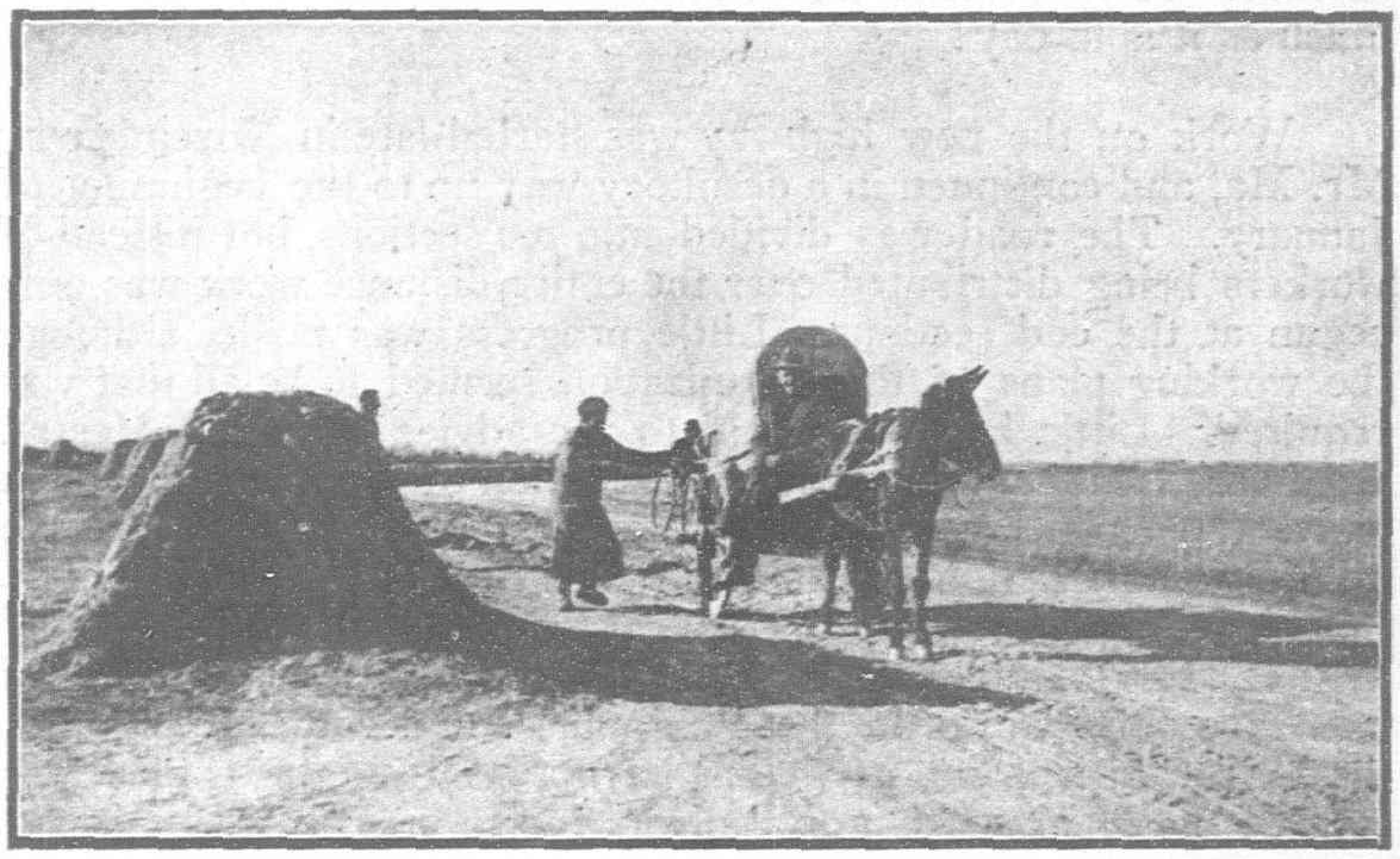


ONE OF THE PRESENT BRIDGES IN GOOD CONDITION NEAR MATON

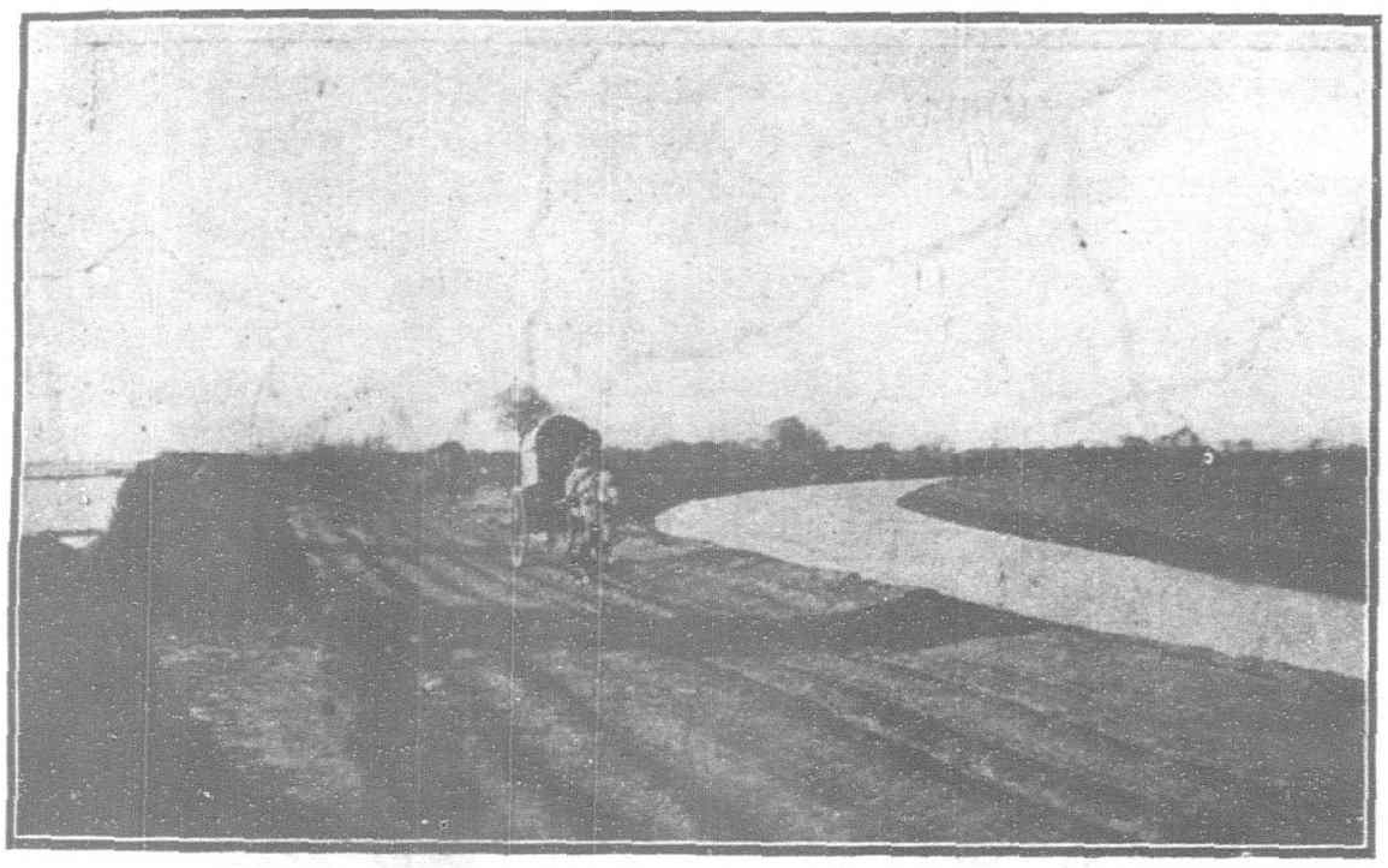
Views Along Route of Peking Tientsin Highway



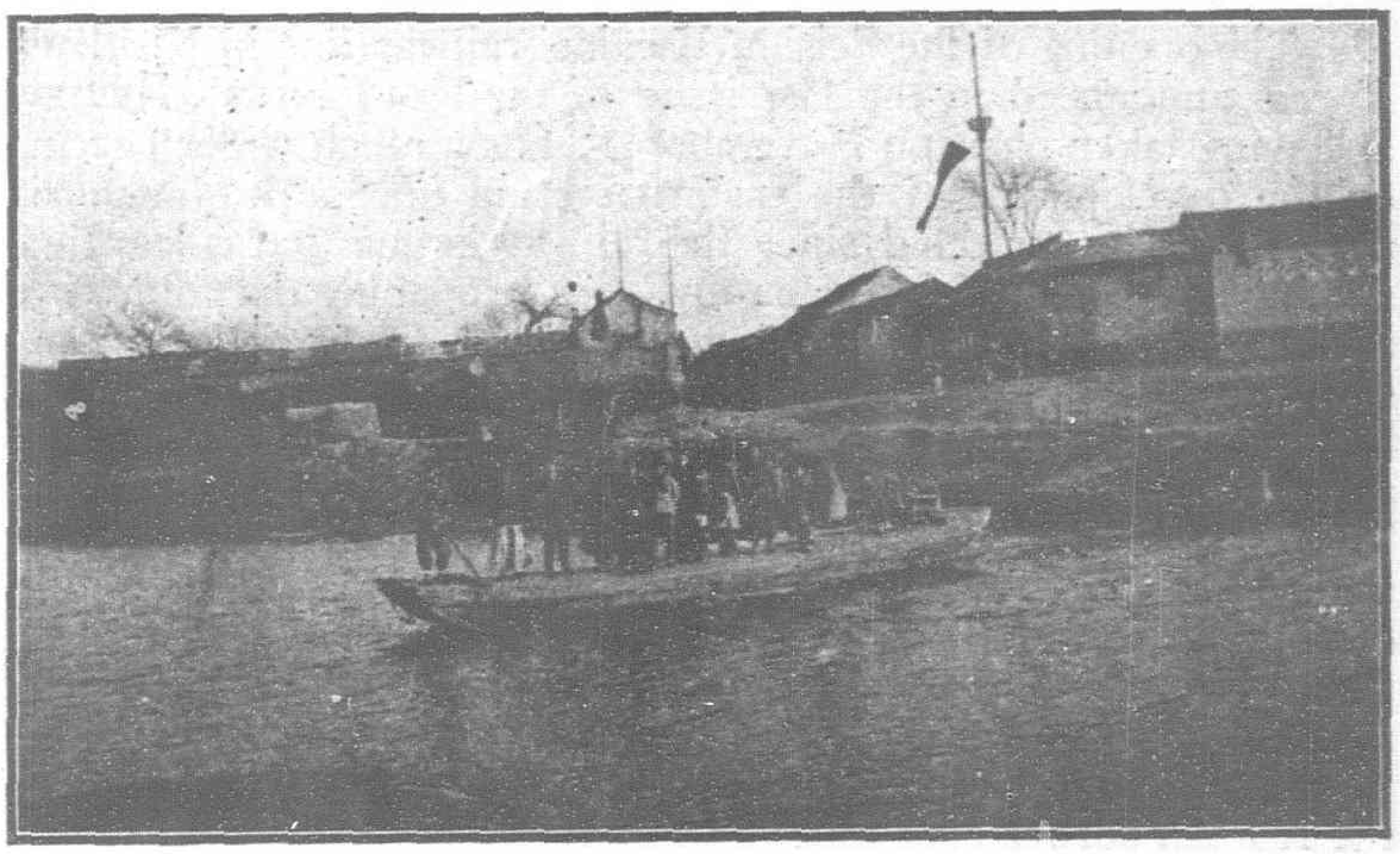
The Granite Slabs After Being Torn Up from Peking-Tungchow Section



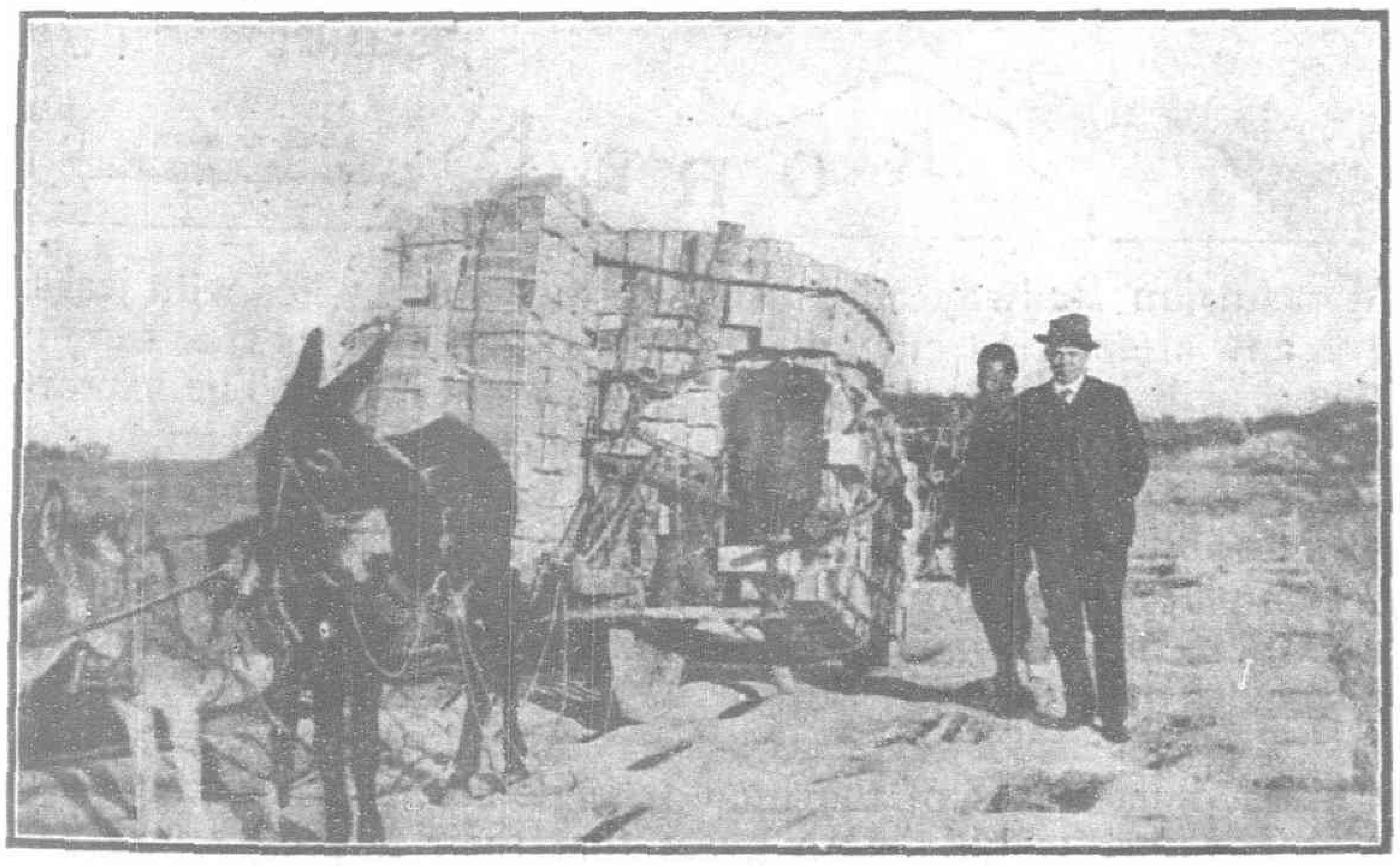
R. A. White in Peking Cart in Reconnaissance Survey in November Peking-Tientsin



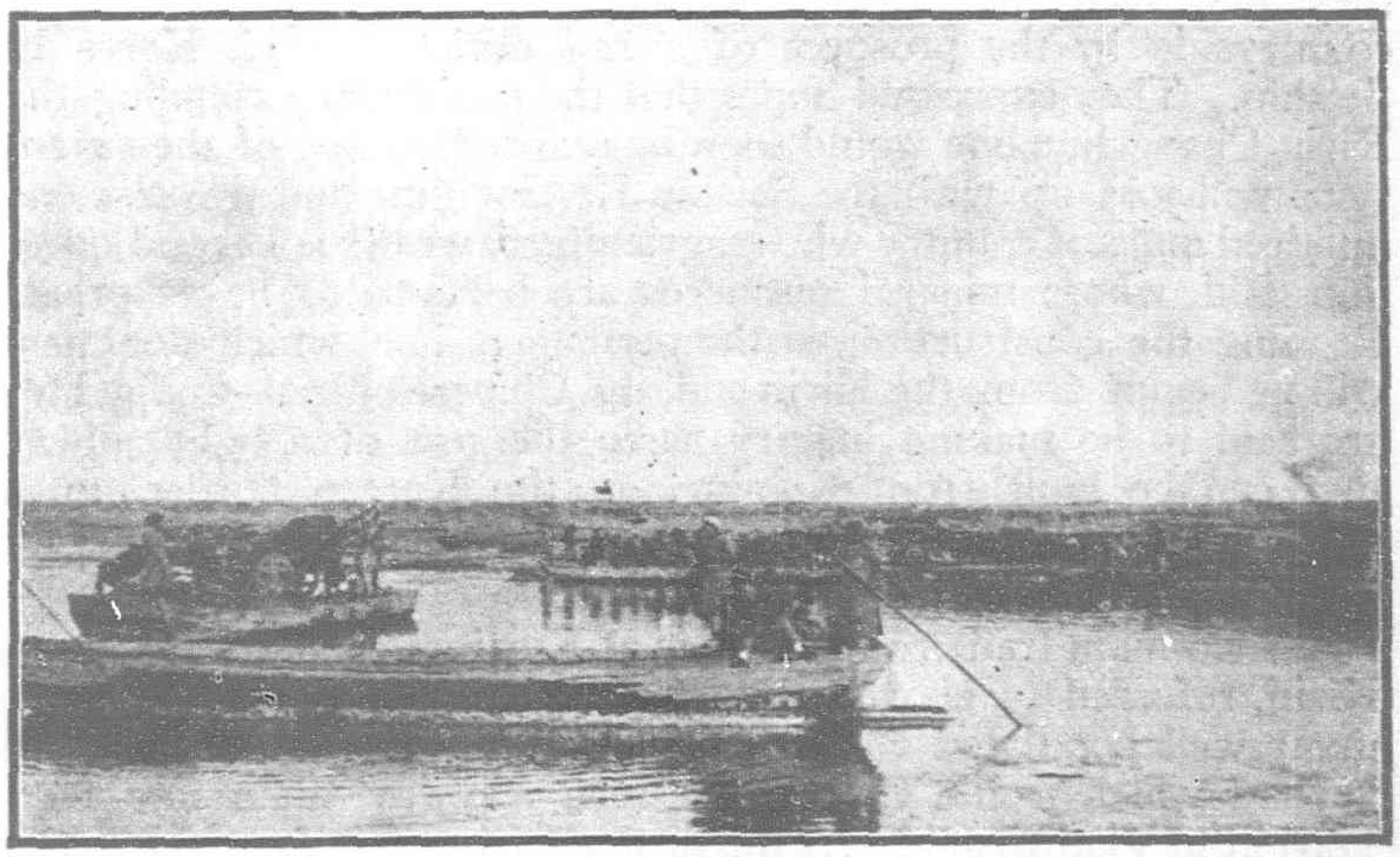
The Road Follows the Dike of the Hei Ho for Many Miles. The Heap of Earth Is for Repairing Emergency Breaks in Flood Time



At Yangtsun the Proposed Highway Crosses the Hei Ho on a Ferry Twenty-One Miles from Tientsin



Mr. Kyle Standing Beside a Load of Empty Boxes, on a One-Wheeled Cart Which Will Be Very Hard on a Macadam Surface



Ferry at Tungchow over the Hei Ho

As a relic of the Ming Dynasty there was still an old granite slab highway from Peking to Tungchow in a very poor condition, and so out of repair, worn, and uneven as to be almost wholly impassable. Native vehicles had long refrained from using it.

It was decided to use this same route, utilizing the granite slabs found to be in good shape for Chinese cart roads on either side of the macadam, and to break up the poorer stones for the center section of macadam.

The accompanying views give a very good idea of this old highway, which has in parts withstood five centuries of usage. It was built as the connecting link between the Capital and the tribute granaries at Tungchow. The granite slabs with which the road is surfaced are laid on a substantial bed of concrete. They average 2½ feet in width and in many cases are 15 feet in length, and about one foot in depth, and were carried from quarries in the Western Hills, some 30 miles distant. The road shows clearer than anything else, with the possible exception of the Great Wall, what wonderful builders the Chinese of past ages were. In its prime the road would have rivaled the best Roman roads of 2,000 years ago. The Peking and Tungchow ends of the road, it is however noticeable, were better built than the central sections, showing greater inspection or perhaps fear of the officials. It is evident that human nature 500 years ago was much as it is to-day!

Work on the new highway was started late in November by Mr. Ma, and continued in a desultory way up to the beginning of January. The road was divided into ten sections, but instead of workers being distributed over the entire distance work was only begun at the end sections. Little progress was made, although the working plans of the organization seemed to be all that was required. Little heed was paid to the advice given by Messrs. Kyle and White as to the proper execution of the work, and such bad arrangements were the result that it was finally decided to take the construction out of the hands of the Chinese Engineer-in-Chief and place it under the direct supervision of Mr. R. A. White. Mr. White was formerly District Engineer in charge of extensive road works in the Philippines, under the direction of the U. S. Government, as well as having been on the engineering staff of the Hankow-Canton Railway for several years.

It is to be hoped that he will succeed in completing the road as planned; and he will be able to do so if the Chinese afford the coöperation that is expected of them.

Mr. Bailey, of Nanking University, who has had considerable experience in relief work among the Chinese, has been placed in charge of the payment of the workmen, while Mr. Gordon, of Tungchow College, looks after the supply of food. The Chinese Government is still represented by Mr. King, assisted by Mr. Chu, of the Shanghai Chinese Red Cross Association.

The refugees are paid $6 (Mexican currency) per month, $3 of which is sent to their families at home, the balance being parceled out to them in the shape of food and clothing. Tools and all implements are supplied, as well as clothing, cooking utensils, coal, etc. The men, on an average, are a sturdy lot and do their work willingly. As they are almost all farmers they at first displayed considerable ignorance in the handling of themselves, but it is thought that by the spring they will be fairly efficient workmen.

A system of piece work will soon be introduced whereby it is hoped that many thousands of dollars can be saved and the men be induced to take considerably more interest in their work. Already over $30,000 have been expended with little real work accomplished, and it will probably cost about $150,000 to complete the section of fourteen miles.

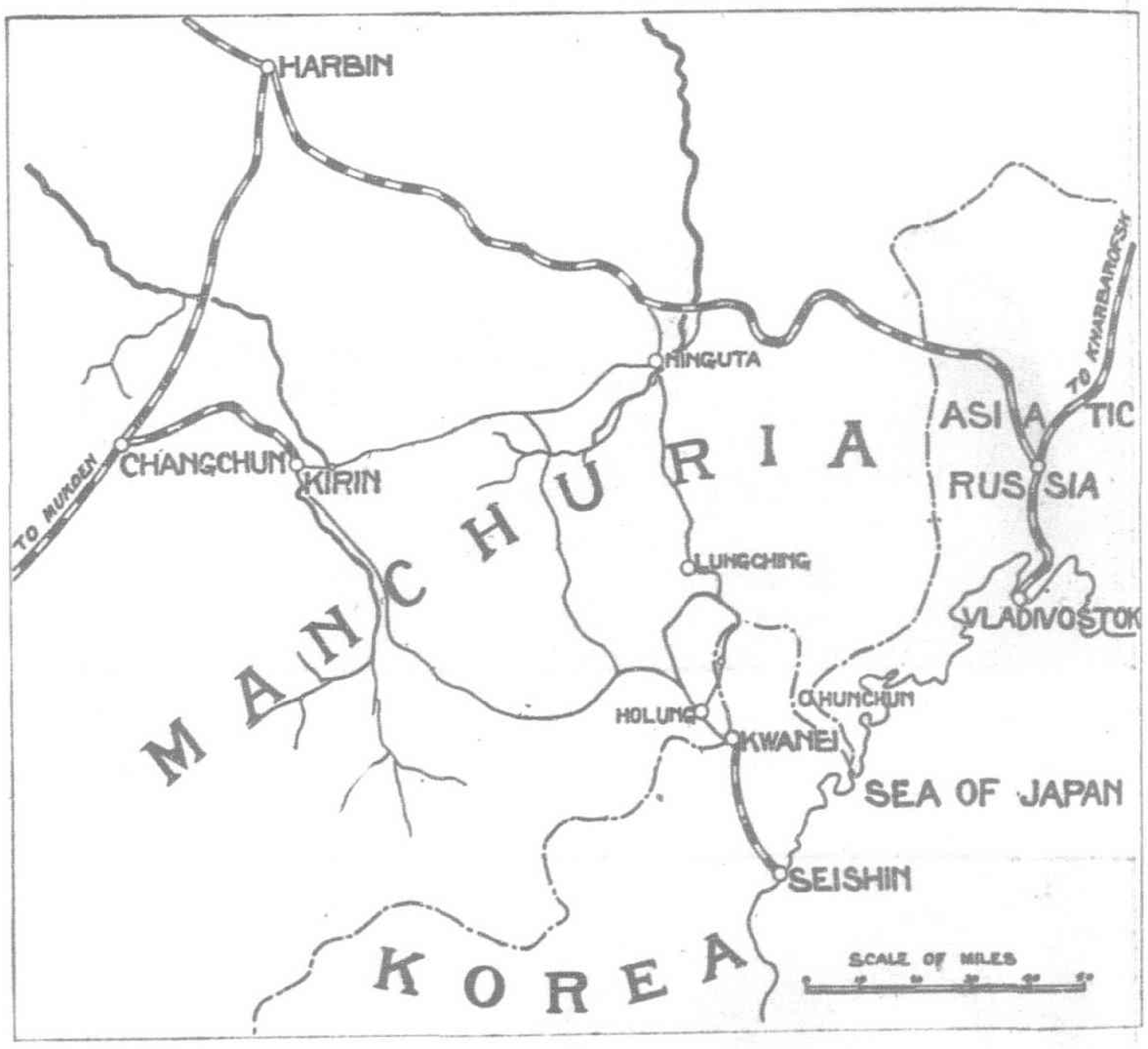
New Manchurian Development Prospects

The opening of the Seishin-Kwainei railway line in Northern Korea, announced in the last issue of the FAR EASTERN REVIEW as having taken place on November 25, has a much wider bearing on the development of the eastern section of South Manchuria than might be expected since the railway in question is less than fifty miles in length. Its value to Korea in opening the country to the northern border and making an outlet for agricultural and mining products through the port of Seishin is readily perceived, but it is the potential value as the first link in the extension of the Kirin-Changchun line to the sea that is of first consideration. To be sure, the link is separated from the main chain by more than one hundred miles, but a line with two ends and no middle often is easier to finish than one with a middle that does not end anywhere. Under the existing treaties between China and Japan, the right to extend the Kirin-Changchun Railway is given Japan, the original plan being for an extension to Hunchun, a town on the Korean border four miles east of Kwainei.

At the opening ceremony of this Seishin-Kwainei line, says a belated report, the Chinese officials of the district just across the border from Korea, were most enthusiastic over the event as they had seen the impetus to development given their own countryside by the prospect of a rail outlet through Korea to Seishin. They expressed hopes that the project of extending the Kirin-Changchun line would soon be realized, as one of the extensions will join up with the Seishin-Kwainei line and traverse one hundred miles of country whose agricultural wealth is beyond question and whose mineral resources are believed to be as great. Pending the construction of the permanent line, which doubtless will be begun from the Kirin end, the Chinese officials and gentry are said to be making inquiry as to the cost of a light railway that can be built from Kwainei on the Korean border in a northwestwardly direction, along the most probable route for the Kirin extension to traverse later.

Two main trade routes center at Kwainei. One is that from Kirin, referred to above, while the other runs due north through many well populated valleys to the town on Ninguta a few miles beyond which is the Chinese Eastern Railway main line from Harbin to Vladivostok. As the distance from this future junction point to Seishin is almost fifty miles less than to Vladivostok, and as the port of Seishin can be kept free from ice with much less expense than Vladivostok, which lies one hundred fifty sea miles to the north, it is expected that two hundred miles saving in water and land transportation will act as a stimulas to the building of this branch.

The trade route from Kwainei to Kirin would shorten the rail haul for products of Kirin and vicinity more than one hundred miles, the difference between the distance via Mukden to Dairen being at least two hundred fifty miles, while that from Kirin to Seishin is about one hundred fifty. It has therefore been predicted that every argument would be brought to bear by Japan upon China to induce the prompt extension of the Kirin-Changchun line. How the South Manchurian Railway administration, which watches with jealous eye any attempt to cut away what it considers its true carrying shape, will look upon this project, is a question. The improvement of Fusan and the effort of the Japanese Government to route traffic over the Korean railways to the exclusion of Dairen was not received with favor, although the new arrangement, which places the Korean railways under the Manchurian railway management may have mitigated the initial sting that made the advocates of Dairen cry out.



But this is looking a long way ahead. The benefit to the Chinese inhabitants of the huge triangle between Ninguta, Kirin, and Kwainei would be so great that their advocacy may have some effect upon the Government and lead to more activity in railway building than has been shown in the past. Add to this the pressure that the Japanese undoubtedly will bring to bear at Peking now that the Kwainei-Seishin road is open, and the prospects for the developmeut of the borderland section of Manchuria nearest northern Korea is bright. That the Japanese administrators of Korea have had the foresight to plan this development and have been willing to spend the money which this fifty miles of line has cost as an argument for the immediate development of the proposed lines on the Chinese side of the border redounds to their credit and should do much to bring about a more cordial feeling than has existed in the past between the Chinese, Koreans, and Japanese in the eastern edge of Manchuria.

Editorial Comment

Japan and China Loans

Japanese profits from war supplies have put the financial market of Japan on such an affluent basis that that country has now become practically the only source of small loan supply so far as China is concerned. And China is constantly in need of loans. Her failure to organize any industry to take advantage of war conditions has left her out in the financial cold, a fact which redounds to the credit neither of her high officials nor her commercial men, and the frigidity of the atmosphere is accentuated by the sight of the warmth of wealth observable just across the water. The fable of the fox and the grapes does not apply to China, however, nor does that of the dog in the manger have any parallel in Japan. China knows that she can secure a share of the good things if she is ready to pay for it, and Japan is eager to do business so long as she gets her terms. And China is ready enough to pay. Who, then, can blame Japan in any way if she takes the very fullest advantage of a situation that enables her to turn over her well-earned capital on good terms? Certainly no other capitalists or financiers. Any lament from them is due solely to the fact that they are not in a position to go and do likewise. They are not born philanthropists, by any means. The cry that arises in quarters that the Chinese are selling their country is surely purely a matter for the Chinese themselves. Why blame those Japanese financiers who are able to get what they want? If the Chinese are not astute enough to convert their tremendous natural resources into the wherewithal to purchase them individual affluence if not national greatness the blame and the shame are theirs. They have the resources, they have the labor, and times out of number they have been offered all the financial and scientific help necessary. They have failed to take advantage properly of either, and mainly because political intrigues and struggles are permitted to oust practical economic questions from consideration. How long this deplorable state of affairs is going to last cannot be prognosticated, but there are signs that the mass of the people are becoming seriously tired of the wanton internecine warfare which contributes so greatly to the poverty of the country and the general failure to inaugurate organized administration. Military dominance of the kind common in China spells national ruin. Were it not for this China would never have to seek foreign loans. It eats up resources, encourages corruption of the most insidious type, and puts a premium on robbery of national funds by provincial officials. A straight out system of accounting, the determined punishment of triflers with national funds, and the dismissal of incompetents, would be sufficient to straighten out the whole of China's financial difficulties. Always we are hoping to see some man arise in the country to effect these three simple essentials, but apparently the time is not yet—nor is the man.

New Loans with Japan

Among the loans recently signed by the Peking Government in which Japanese investors are interested either wholly or in part are the Grand Canal Loan; an advance of Yen 10,000,000 in September, 1917, and another advance of Yen 10,000,000 in January of this year in connection with the so-called Second Reorganization Loan; a loan of Yen 5,000,000 for flood relief; and a loan of Yen 2,000,000 secured on the Bureau of Printing and Engraving at Peking, while the air has been full of rumors of other loans including one of Yen 40,000,000 for the purchase of arms, one for Yen 1,000,000 by the Tuchun of Fukien, and one by Tuchun Tsao Kun at Tientsin for $5,000,000 secured on Chinese shares in the Kailan Mining Administration.

The Grand Canal Loan, as already stated in a previous issue, is signed with the Siems-Carey Railway and Canal Company, The American International Corporation being the financiers. Japanese investors have been allowed participation to the extent of five twelfths of G. $6,000,000, the remaining seven twelfths being American. This loan is for reconstruction work on the Grand Canal in Shantung and Chihli provinces. The interest is 7% and the price to the Chinese Government 90%.

The two advances of Yen 10,000,000 each were made by Japan on behalf of the British, French, Russian, and Japanese banks forming what is commonly known as the Group Banks, which, with the German bank, financed the Reorganization Loan of £25,000,000 in 1913. Japanese banks have stepped into the breach to find the Yen 20,000,000 as advances in connection with a further loan to be arranged at some future date, though they have separate status, and are merely for one year, with privilege of renewal. The last advance of Yen 10,000,000 was paid into the Yokohama Specie Bank on January 16 and netted to the Chinese Government Yen 9,200,000. The security is the surplus revenues from the Salt Administration under the control of the Group Banks. The interest is 7% per annum. The proceeds are to be used by the Chinese Government to repay part of the advances previously made by the Bank of China to the Government. The Japanese banks interested in these advances are the Industrial Bank of Japan, the Bank of Korea, the Bank of Formosa, the Mitsui Bank, the Mitsubishi Bank, the First National Bank, the Fifteenth National Bank, the Hundredth National Bank, the Third National Bank, the Yasuda Bank, the Yokohama Specie Bank, the Thirty-Fourth National Bank, the Sumitomo Bank, the Konoike Bank, the Omi Bank, the Kajima Bank, the Naniwa and the Yamaguchi Bank. The terms of the loan stipulated that the Chinese Government could draw Yen 2,000,000 weekly.

The loan of Yen 5,000,000 for flood relief was negotiated with the President of the Sino-Japanese Industrial Bank representing a syndicate of eleven Japanese banks. The loan is for one year at 7%; the issue price was par, less 1¼ per cent discount, and the security the native customs revenue of Dolonor and two other places in Mongolia.

The loan of Yen 2,000,000 secured on the Bureau of Printing and Engraving at Peking was negotiated with the Mitsui Bussan Kaisha. It is for three years at 8% interest per annum; the net payment to be 98%. The agreement provides that in the event of materials being necessary they are to be purchased from the Mitsui Company provided that prices are no higher than those of other competitors. It was also stipulated that should the Bureau require additional experts the Mitsui Company shall select them; and that the Bureau shall "undertake the printing of all certificates of value that may be issued by the Chinese Government." The proceeds of the loan are to be used to liquidate debts incurred by the Bureau.

With regard to the arms loan, stated to have been Yen 40,000,000, strong attacks were made by sections of the press upon the Government, and though the original details were modified some arrangement has been come to, the facts of which have not yet been made public.

The Foochow Arsenal Loan for Yen 1,000,000, is not yet confirmed. It is reported to have been secured on the Foochow Arsenal. Strong protests were made against the loan by certain Fukienese.

Last year the Bank of Taiwan, the Bank of Chosen, and the Industrial Bank of Japan also made a loan of Yen 5,000,000 to the Bank of Communications for reorganization purposes, the interest being 7½% per annum, and the term three years. The security was Treasury Bills guaranteed by the Government. The Bank of Communications requested the lending banks to appoint an adviser and they selected Mr. Fugihara, formerly chief of the Banking Section of the Korean Government.

The money was not transferred immediately on the completion of the loan owing to the adverse rate of exchange, but was kept on deposit in the banks in Japan for some time. The greater part of it was earmarked for the reorganization of the branches of the Bank in South and Central China.

Another Sino-Japanese transaction, which at the time was wrongly called a loan, was the formation of an exchange Bank projected by Mr. Lu, former Chinese Minister at Tokyo. The capital was fixed at Yen 10,000,000. The Company was registered in China according to Chinese law and most of the big banks in Japan are interested in the Japanese half of the capital. There are two managing directors, one Chinese and one Japanese, the President being Chinese.

On October 12, 1917, the revised Kirin-Changchun Railway Loan agreement was also signed at the Board of Communications, Peking, Mr. R. Tatsui (Director of the South Manchuria Railway Company) representing the Japanese interests, and Mr. Chien-liang and Mr. Liu Meng-hsiang the Chinese Government, The chief features of that Agreement are as follow:

a) Amount of Loan, Yen 6,500,000:

From the above amount, about Yen 1,980,000, being the unpaid balance of the original loan of Yen 2,150,000, as advanced by the S. M. R. Co. on August 18, 1909, shall be subtracted, and the remaining amount of about Yen 4,510,000 shall be delivered to the Peking Government.

b) Interest: 5% per annum.

c) Net amount: Yen 91.50 per Yen 100.

d) Term: Thirty years.

e) Security: Properties and receipts of Kirin-Changchun Railway.

f) Managemet: Control of the Railway is held by the Peking Government. During the term of the Loan, the S. M. R. Co. shall assume the management of the Line on behalf of the Peking Government in consideration of the net profit of 20%.

g) Chief Officials and Scope of Authority: The Peking Government shall appoint a Director to supervise the general affairs of the Railway.

The S. M. R. Co. shall select the Chief Engineer, Traffic Manager, and Chief Accountant, one of whom shall be nominated the Company's Representative and shall attend to the exercise of the Company's rights and the fulfillment of its obligations within the bounds of the Agreement.

With regard to matters of importance, the Company's Representative and the two other officials above mentioned shall consult the Director beforehand.

h) Through Service with the S. M. R. Co., etc.:

With regard to the through traffic service with the S. M. R. Lines, the joint use of the Railway Station at Changchun, and the completion of the improvement of the Lines, an agreement shall be concluded separately.

A Railroad Route into Szechwan

In a previous issue of the FAR EASTERN REVIEW we announced that the surveyors connected with the Siems-Carey Railway and Canal Company had found a feasible railway route over the hitherto almost impassable Tapashan mountains into the rich province of Szechwan. Further investigation indicates that it is possible to construct a railway, via the valley of the Han River to Tzeyang, thence up the Jen-ho River, across the Tapashan mountains, down the Tungkiang River, and westwards to Chengtu, the capital of Szechwan, with a maximum grade of one per cent. How important this is can only be grasped by those who realize how wonderfully rich the great province of Szechwan is, and how great are the difficulties to be overcome to reach it. The turbulent Yangtze, with its tremendous rapids, is the main means of ingress and egress. Dangerous at all times, and impassable at some stages, this river is a terror to all engaged in commerce, yet it has proved a boon, for the province is ringed in by great mountains over which nothing but a trail passable by coolies or pack animals has hitherto been possible. Virtually Szechwan has practically been isolated. Its great population has been able to thrive because its resources are so rich and varied as to make it self-contained. Great as the commerce is, comparatively speaking, which has developed during recent years, it has grown in spite of the grave natural difficulties confronting the enterprising people engaged in it. What it will expand to with a railway connecting it with deep water cannot even be estimated. Statisticians might juggle with some big figures. Its area is some 218,533 square miles, and its population is estimated to be some 70,000,000. Its area is bigger than France, bigger than Germany, nearly twice as big as the United Kingdom, and its population is larger than that of Germany, nearly twice that of France, and fourteen times larger than that of Australia. The Szechwanese are industrious to a man. Every arable inch is cultivated. In the mountainous region through which the feasible line has been found the mountains were under cultivation—terraced to their tops. One of the surveyors found a man plowing, with two bullocks to the plow, at an elevation of 8,000 feet in a veritable sea of mountains. Corn was found to be planted in the crannies of cliffs—a task for an Alpinist to harvest the slender crop. Down on the great plain, where centuries ago native engineers established an irrigation system, marvelous in its efficiency the population teems and lives in abundance. In the region known as the Red Basin the products are numerous. Silk is one of the most valuable exports, the output in 1910 being estimated at over three and a half million taels; white wax, tobacco, tea, wheat, medicines, sugar, rice, indigo, fruits, are produced in great quantities. Of minerals there are rich deposits. Petroleum is believed to be obtainable in great bulk. Salt is a byword. Richthoven estimates that Szechwan has more coal bearing country than the total area of any other province in China. Iron is widely manufactured by crude native methods, while there is conspicuous evidence of copper, silver, tin, gold, lead, zinc, asbestos, etc. And yet this great natural deposit of wealth is served by but one roaring, turbulent river, and one or two difficult roads or trails over vast ranges of mountains. The route discovered by the Americans would traverse new country, far removed from the Yangtze valley, and would thus give not only an additional avenue for trade but one of a modern character, which would bring the remote province in speedy touch with the sea, and from a strategic point of view in practically immediate touch with the capital, Peking. Of all the lines in China that the Government should build and build quickly this one into Szechwan calls loudest for consideration, and of all the provinces of China, Szechwan holds the greatest promise for commercial and industrial development for the immediate benefit of the people.

Where Anglo-American Coöperation Can Avail

In recent months there has been much talk of Anglo-American coöperation, and if those who talk so much about it are really serious they might get their heads together as well as their possessions to give some practical demonstration in China of their ability to construct at least three railways that ought to be built as soon as possible. One is the completion of the line now under construction between Wuchang and the Kwangtung Railway (the Hankow-Canton Railway); another is the completion of the railway between Pukow and Sinyang, and the other is a railway into Szechwan via the Han River valley.

The railway from Wuchang (opposite Hankow) southwards into Kwangtung province, to connect with the Yuet-Han Railway, already operating for some 160 miles or more from Canton, demands immediate attention. The northern section already is operating between Wuchang and Changsha, thus virtually giving Changsha Railway connection with Peking, and—Europe; and the gap between Changsha, or, say, Chuchow (for traffic is possible over the coal line to Pinghsiang) and the railhead of the Canton section ought to be pushed to completion without delay.

Lack of finances is the stumbling block, and money ought surely to be available from America provided proper steps are taken to secure it. Materials at war time prices would make costs of equipment excessive, but the necessary earthwork could be completed with construction material available in China at present—and if the war is not over before the long gap can be embanked, tunnelled, and culverted, Heaven help the world. So far as we can understand the hitch with regard to funds is political; or rather is due to the fact that no serious effort has been made by those concerned to settle some questions which await adjustment.

Money could no doubt be obtained from America if Great Britain would waive the right her nationals have to extend the projected railway from Pukow to Sinyang, on the Peking-Hankow Railway,—in a westerly direction to Siangyang, on the Han River, which suggestion brings us to the second railway calling for construction, viz., one into Szechwan province, up the Han River valley, the right to build which has been granted to the Americans. To make this line commercially possible common sense dictates that it be run from Sinyang, and common sense likewise dictates that matters between the British and the Americans be placed beyond dispute to effect the completion of the line (the third one which ought to be built), which was under construction between Pukow and Sinyang when war broke out. Work on this railway was suspended solely for want of funds, and awaits the termination of the war before the British can even think of resuming operations. If America would find the money to enable this line to be built we would have direct connexion between Shanghai and the capital of Szechwan when the work is completed, via Pukow, Sinyang, Siangyang (on the Han River), Tzeyang, and Shunking. The situation is, therefore, that the British hold the right to build the Pukow-Sinyang section, and the Americans have been given the right to build the line up the Han River valley into Szechwan, and cannot proceed along the logical route from Sinyang to Siangyang because the British hold the right to that section.

On one side the British have the right but not the money, and on the other the Americans have the money but not the right. Surely a beautiful set of circumstances to admit of the fullest play with those apparently earnest coöperative sentiments expressed just recently. The ingredients are money and rights, and the parties possess them between them. If Anglo-American unity, or Anglo-Saxon "get-togetherism" is worth a snap the mixing of those ingredients should produce anything but indigestible international plum duff or humble pie.

The advantages of coöperation in this field are so tremendous that to call attention to their obviousness is tantamount to insulting the intelligence of people familiar with China. Any railway in China will benefit China, and thus will benefit all trade. The British and the Americans want nothing but trade, and if they join in the building of these three lines they should have great opportunities between them.

Coöperation would thus mean the earliest possible construction of a line running north and south through China from Canton to Peking and beyond, and one east and west through China from Shanghai to Chengtu, the capital of China's richest province, as yet virtually isolated. If the people in the provinces through which these railways would run knew what their import is they would go down on their knees night and morning and burn joss paper to the British and Chinese Corporation and the American International Corporation, the financiers for Siems and Carey, praying them to fuse their ideas, their rights, and their money. These great corporations ought to do it anyway if merely to prove that there really is something in this talk of Anglo-American unity. It would be a lesson to the Chinese having a thousand fold advantage.

Philippine Government Expenditure

Theoretically government is for the benefit of the governed, and those in power are suffered only just so long as they prove efficient conservators of the public resources. This democratic theory in these days is being carried out more and more in a practical way in that the welfare of the people now begins to assume a paramount position as a first charge upon the revenues. Judged along these lines, the present administration in the Philippines certainly is to be congratulated for the excellent showing it has made in the recent report of Auditor C. H. French, in which he treats the revenues of the government from an economic standpoint and proves conclusively that the revenues are being expended solely for the benefit of the Filipino people.

The largest single item in the Philippine budget is for aid to local governments, which consists in a large part in the construction of utilities and improvements that will directly benefit the people by improving the conditions under which they live, either in educational, agricultural, and communications improvements such as schoolhouses, irrigation works, roads and bridges. This money will be returned to the government in the increased production of the provinces and their contributions through taxation will in time be dividends on this investment.

Next in order is public education, which absorbed 17.57 per cent of the revenue in 1916, an increase of 1.2 per cent over the preceding year. With education, under the Filipino system, must be classed public corrections, since the penal system in the Philippines is directed solely towards educating the offender away from the misguided or untutored ways which led him into crime. It must be remarked here that a large percentage of the natives of the Philippines were utter savages twenty years ago, and it is not unusual for a murderer to be quite a leader in his community and a force for progress despite his dexterity with the headaxe. This service absorbed 2.8 per cent of the revenues.

For the development of commerce 6.5 per cent was expended principally in road building and opening up country that in a few years will tax the new means of communication to the utmost to move products destined for the world's commerce from what would otherwise have remained waste land. With this item must be considered 2.9 per cent of the revenues that were expended for the development of agriculture, and in this connection it may be noted that more than 3 per cent of the total revenues were for the suppression of animal diseases and plant pests, and service directly connected with agricultural extension.

Conservation of natural resources in the Philippines largely centers in the Bureau of Forestry, since the forests of the Philippines are its only live asset—one which needs only be transported to market to be exchanged for gold. The forests are administered not for the present only, but cutting is so supervised and directed that the holder of a twenty-year concession will leave a forest in a much better condition than he found it, since there will be no superabundance of overripe trees, as is the case in practically every new concession opened.

Publicity work, which in the case of the Philippines means the extension of its commerce and popularization of its products throughout the world, absorbed 1.35 per cent of the revenues, and if the customs returns are any criterion, the money was well spent.

It is interesting to note that a slightly more liberal policy was manifested towards the development of the industrial arts and sciences, in which almost 7/10 of one per cent of the revenues was allotted for that purpose this year as against 1/5 of one per cent last year. This money is expended largely by the Bureau of Science, which has for its work the opening up of exceedingly broad fields in the utilization not only of existing products, with which the world is as yet unfamiliar, but the extension and development of new products in the islands, a duty in which it coöperates with the Bureau of Agriculture. Those who are familiar with the published reports of the Bureau of Science are unanimous in the hope that the government's purse strings will be still looser when the next appropriation bill is under consideration.

Being a tropical country, and surrounded by other countries where sanitation and the prevention of disease either is ignored or not well understood, the Philippines are continually menaced by imported diseases, such as bubonic plague and cholera. It is therefore necessary that a large proportion of the revenues be expended for the protection of health of the people, and during the past year 8.6 per cent, the fourth largest item in the budget, was allotted to that purpose. Those who knew Manila, the Philippine Islands' chief port of entry, in the days before American occupation, characterized it as "The Fever Hole of the Orient." To-day the percentage of deaths among the foreign population is less than in almost any other city on the globe—so much for scientific methods applied to sanitation and public health, backed up in this case by most liberal appropriations.

Thus far we have spoken only of percentages, and for those who desire to know how much money was expended it might be said that Philippine revenues in round numbers were Pesos 45,700,000, while the expenditure of Pesos 41,000,000, leaving approximately Pesos 4,800,000 to be added to the previous year's surplus of Pesos 10,200,000, so that despite these large expenditures, the Philippine Islands started the fiscal year of 1917 with a surplus of slightly more than Pesos 15,000,000, and as it has had one of the most prosperous years in its existence, it need not stint itself in expenditures that will carry out still further the theory that the government exists for the benefit of the people.

Chinese and the Foreign Flag

In January the branch of the China Merchants Steam Navigation Company at Shasi, a port on the Yangtze, west of Hankow, transferred its property to British ownership, and on the twelfth hoisted the British flag. This was done, obviously, as a temporary measure to secure protection from the fighting forces then operating at Ichang, and proceeding gradually down river. The action brings home once again the insecurity which exists in this country so far as Chinese commercial or industrial enterprises are concerned, especially when they are regarded as semi-official, as is the China Merchants Company. It also significantly illustrates the value of the foreign flag to the Chinese who have property that can be commandeered by the roving militarists infesting the country, and which periodically take the road to uphold "constitutionalism" or some other such thing. In circumstances such as those now obtaining in the country no Chinese concern calculated to possess money, or owning property which is realizable, is safe from the marauding hands of the "rebels" or the Government forces which might be in a position to annex it. Either side will "squeeze" the owner for the wherewithal to continue "the fight for the people!" And if the owner does not respond to the pressure his property is "borrowed" and bargained with, particularly if it happens to be away in the hinterland where the wrath of the high official at Peking, who would naturally be extremely indignant at such a procedure, can be neither transferred into action nor is visible to the naked eye in any way, shape, or form. To escape being sacrificed "for the good of his country" by the belligerents who claim to be the "saviors" of the unhappy land, the Chinese with property or wealth is forced either to run for a foreign settlement, if one happens to exist in the locality, or seek protection under the folds of some foreign flag. There immunity is to be secured for the nonce, and when the "saviors" have departed he once again fares forth for the site of his establishment and proceeds about his business, if any is left him, until further occasion arises for flight. Nor does this condition obtain only in the country. When political changes fill the minds of certain officials in various cities, not even excepting Peking, with apprehension, the foreign flag, or the foreign settlement's is the first thing sought for, and because of its charm in warding off the evil influence of the bad men no Chinese objects very strenuously to some foreigner or other living in his particular district. That such a condition should exist is a disgrace to the Government, but there is no chance of its being remedied until the contentions which now keep the country apart are settled, and an organized administration installed. This will come some day. There is no need to despair because it does not come at once. It would really be a miracle were thousands of years old despotic China to step on to the stage arrayed, as if to the manner born, in the administrative orderliness of up-to-date Republicanism. The old idea and the new idea clash naturally, and time must be given to the protagonists at least to adjust their views. All observers are impatient, of course, and prone to discouragement, but there is one consolation to be cherished and that is that the situation might very easily be very much worse.

Tokyo's Telephone System

So great is the present demand for telephones in Tokyo that the Government fears it will take ten years to install the necessary instruments. The number of telephones already in use in Tokyo is 45,000 which are handled by several different exchanges, each of which has from 2,000 to 7,000 numbers under its supervison, according to the apparatus used in the exchange stations, the older being capable of managing only from 2-3,000 numbers, and the new up to about 7,000. The number of persons who have applied for installation at present is 60,000, and will continue to increase. An official of the Department of Communications has stated that the authorities are of the opinon that they can satisfy every one of these applicants in time, but the concrete plans of the Government, he was unable to give, since they are subject to revision in accordance with the change of the condition in the city. However, the Government is resolved to meet the demand, it is reported, within about ten years, that is to say about 1928 or 1929. By satisfying the demand for telephones, the Government means that it will wipe away the congested applications existing to-day and also all those annual applications added hereafter. Thus the Government must attempt to treble or quadruple the number of installations at present.

The reasons why the telephone system of Japan has such trouble in installation are many. For example, there is the question of expenses, which come from loans and consideration must be given to the time best suited to the flotation thereof. Then too, there is the question of employees. Since the work involves the handling of delicate mechanism, much experience and efficiency must be obtained before the workmen can do the work satisfactorily. Hence, the shortage of hands naturally delays installation. Further, the exchange apparatus used in Japan is imported just as it is from abroad, and being made for foreign women handlers, are rather too high or too wide for the Japanese telephone girls, and so their full working capacity cannot be obtained. Inasmuch as Japan has to import such appliances from abroad the present drawback seems difficult to lessen.

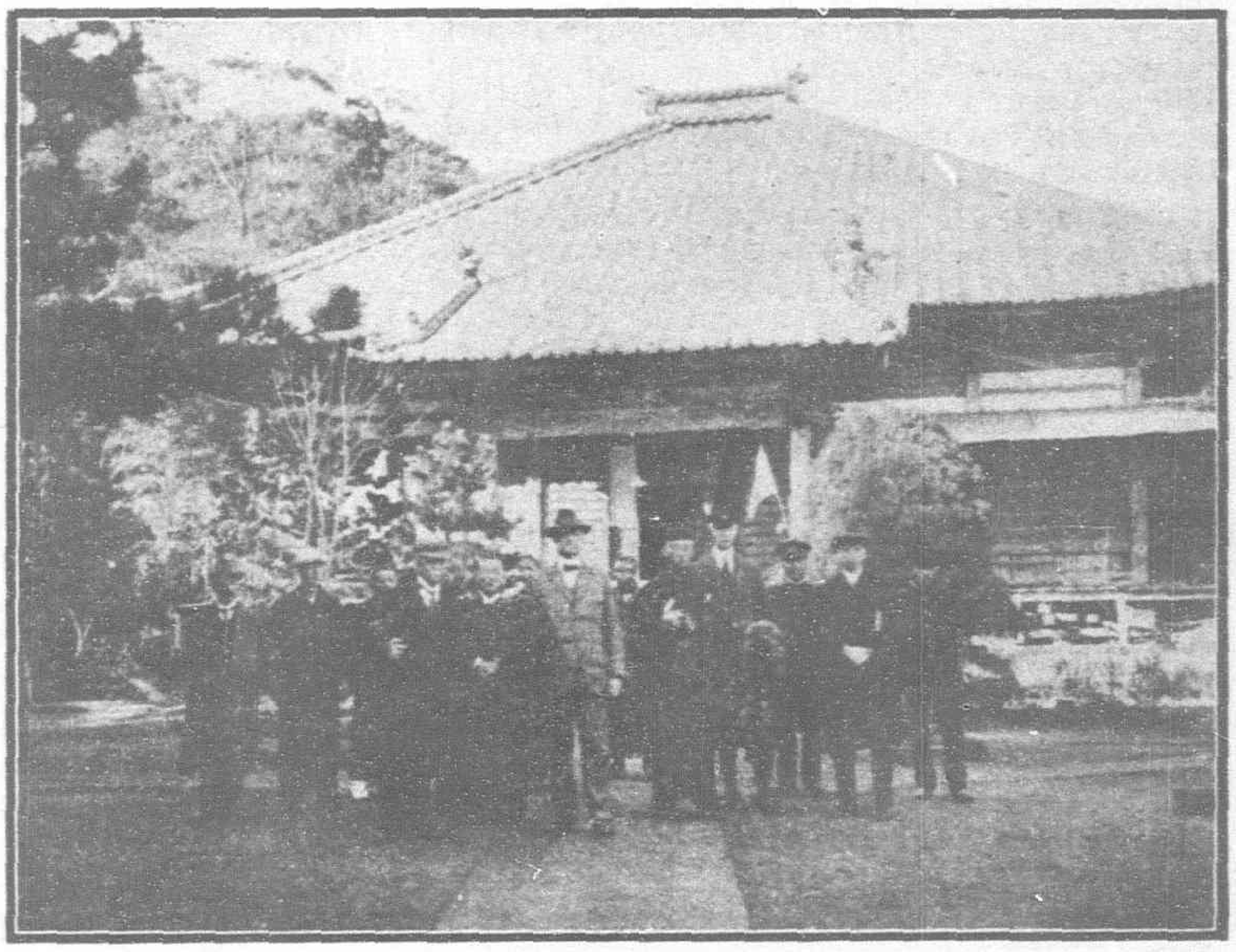
There is no city where such an accumulation of application has been met. In Tokyo there are only two telephones to a hundred persons, whereas the city of Chicago maintains 20 to each 100 of population and one can have a telephone installed on three weeks' notice on application to the company. In Japan, the telephone broker intervenes. The telephone market is a Government monopoly in Japan. If the Government in Japan attended to the business itself, these brokers would be unnecessary, but as it is, they are a necessary evil. Although the authorities have no intention to abolish them at the present, the bad influence on the business is amply recognized. The establishment of this brokerage market has brought telephones like company stock on the Exchange. Similar to the stock market price riggers, the telephone dealers attempt various manipulations to bolster the price of telephones. Tokyo is not the only place where such dealers are active, and they may be seen in all the large cities of the country, especially in Osaka, where prices even higher than Tokyo are often quoted. To-day a good call number costs over a thousand yen, while the minimum may be said to be about 750-800 yen. The authorities regret that the ratio of telephones in Tokyo is only 2 to 100, and are exerting efforts to remove the evil. They ask the nation to await some years longer, when the demand will be amply supplied. They believe that by 1929 everything will be made right. It calls for much patience on the side of the people, which, however, is inevitable.

Sixty Years After

Ambassador Morris Makes a Pilgrimage over the Path Taken by Townsend Harris, the First U.S. Envoy to Japan

Sixty years ago the Hon. Townsend Harris, Consul-General of the United States of America in Japan, received with much display of official honor and show of popular respect, entered Yedo (Tokyo). There was borne at the head of his imposing retinue the American flag, which "with no little pride," he wrote, he had carried "from the extremity of Cape Idzu into the very castle of the city of Yedo." Then was closed a long journey whose results were to be epoch-making in Japan's international history. In Mr. Harris's carefully kept diary is this note: "Monday, November 30, 1857. To-day I am to enter Yedo. It will form an important epoch in my life, and a still more important one in the history of Japan. I am the first diplomatic representative that has ever been received in this city; and whether I succeed or fail in my intended negotiations, it is a great fact that will always remain." The culminating gratification that cheered this successful envoy was that, at last, he had procured from an unwilling government and people an ample acknowledgment of "the rights of embassy."

Ambassador Morris Placing Wreaths on the Graves of Five American Sailors of Commodore Perry's Squadron



Temple at Hashimoto Where Townsend Harris Spent His First Night on His Memorable Visit to Yedo

Remembering this momentous event (writes Dr. Clay MacCanley in the *Japan Advertiser*), the Hon. Roland S. Morris, recently commissioned to Japan as American Ambassador, conceived the "happy thought" of celebrating its sixtieth anniversary in the service of both personal and general interest, by retracing the stages of Mr. Harris's novel journeyings, under present day conditions, and by familiarizing himself with the scenes in which Japan's modern marvelous international career had its beginnings.

After Sixty Years

In order to have some coincidence in the present celebration, Mr. Morris chose to use the same date for starting upon his following of Mr. Harris's line of travel—November 23. Thereupon on Thursday, November 22, just passed, Mr. Morris, with a few friends, went to Shimoda, Mr. Harris's place of departure for the capital in 1857. By express train to Numadzu and thence by motor car to their journey's end, using less than nine hours on the way, the Ambassador and his party were at a Shimoda hotel, having gone over, in reverse, the distance that Mr. Harris and his cortège, traveling steadily, had required eight days to pass. What an amazing difference in speed of travel! What an exhibit of the change wrought in the means of communication in Japan in the sixty years of the Empire's international intercourse!

Our first privilege was to go to the very home of Mr. Harris, more than a mile, however, from Shimoda proper, but across the then brilliantly radiant and beautiful Shimoda bay, at Kakizaki (Oyster Point).

Where Harris Landed

Our first objective was a stretch of water beyond a small precipitously walled island nearly a half mile away, named, long ago, "The Anchorage." Here it was that Commodore Perry came with his vessels, after having secured from the Shogunate in 1854 the privilege of opening two of Japan's harbors to trade with the outer world, Hakodate and Shimoda, and here it was that on August 21, 1856, the United States Steam frigate San Jacinto anchored, bringing to this port Hon. Townsend Harris, chosen by President Pierce upon the joint recommendation of Commodore Perry, and Hon. William H. Seward, to be the American Consul-General, intrusted with the making of a commercial treaty with the government of this unwilling Empire.

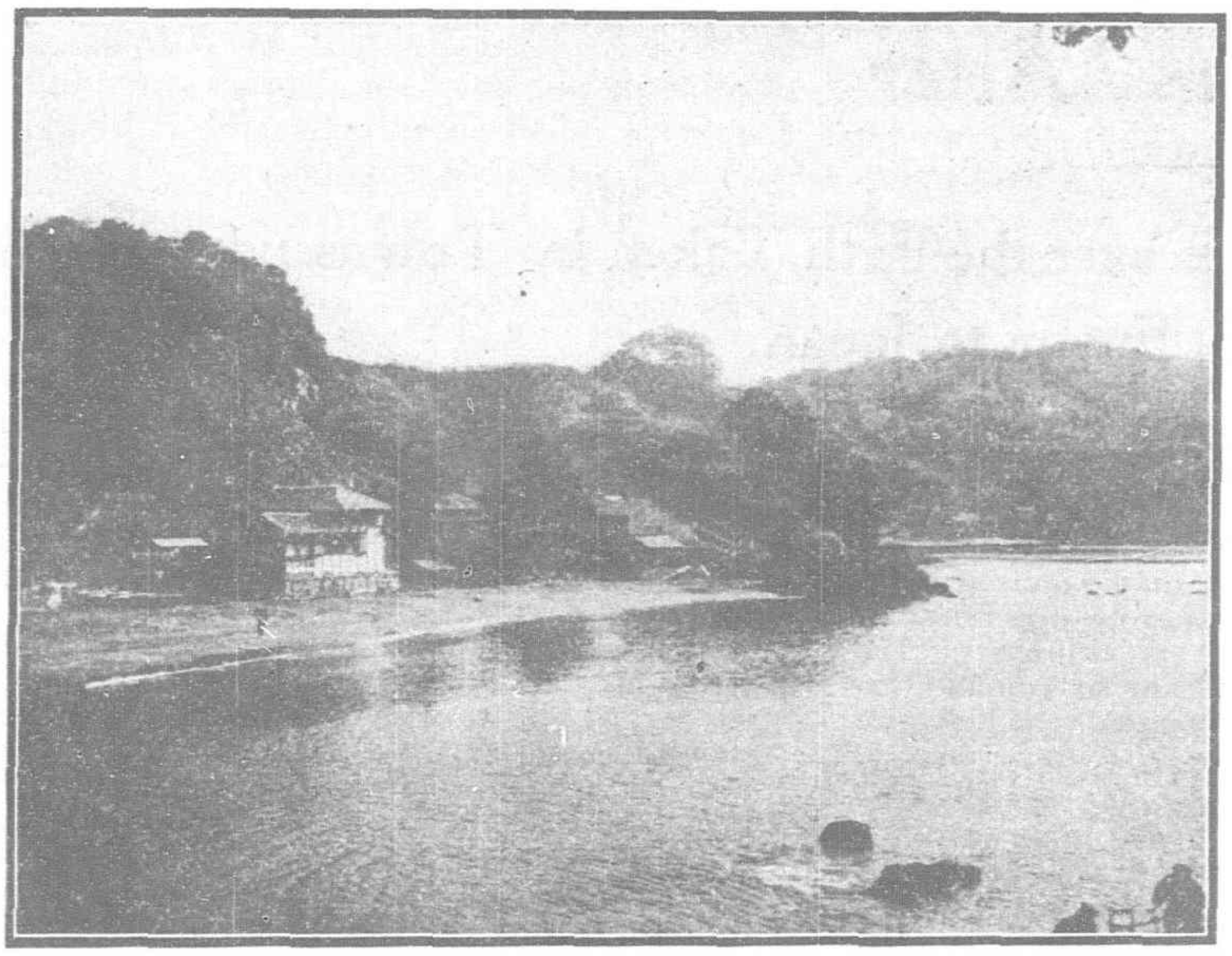
After much annoying delay, subterfuge, obstruction, disregard of promises, and repeated petitions from officials that he should go away and return in about a year when "a suitable house might have been prepared for his residence," Mr. Harris at length accepted, but under protest, a small temple in Kakizaki as a domicile, to be, however, a "temporary home," leaving the question of his official residence to be settled by future negotiations. Kakizaki was not Shimoda, and, unquestionably the place was chosen as being on the very outermost edge of the outermost peninsula of the land whose Government wished to keep all its doors into the outer world fast closed. But, to save time, Mr. Harris had concluded to accept the offer It gave him at least a foothold, and he would wait for better days to come.

"Kakizaki is a small and poor fishing village," wrote Mr. Harris, "but the people are clean in person and civil in manner"—a comment that is true to-day. Mr. Harris made this note, also still applicable to the temple: "The rooms are spacious and very neat and clean, and a person might stay for a few weeks in tolerable comfort." But those "few weeks" lasted for Mr. Harris from September 3, 1856, until November 23 of the following year: and what those many "weeks" must have been to the American Consul-General, practically "marooned" on the extreme outer edge of Japan, with an almost impassable mountain barrier between him and Japan itself, may be understood by a diary note made August 21, 1857: "Happy Day! I get a package with a dozen newspapers and some China letters. This day is the anniversary of my arrival in Japan. One year here, and not a single letter from America. My last letters were dated February 1856, eighteen months ago. How much may have happened! What has become of the American men of war of the East India squadron?"

The Dawn Breaks

That dark hour, however, was just before the dawn. September 7, 1857, Mr. Harris wrote, "It is now one year and four days since I was left here, and full six months have run beyond the time that Commodore Armstrong promised to visit me." But "at noon the signal gun gave the joyful news that a foreign ship is in sight." September 8 is the note: "The ship proves to be the United States sloop of war Portsmouth. At noon the ship came up and the captain came to see me."

Thenceforward, Townsend Harris's day brightened and brought rich rewards for his long, discouraging waiting. Three months previously, June 8, in his isolation that had



THE VILLAGE AND BAY OF KUSAKABE WHERE TOWNSEND HARRIS WAS TAKEN AFTER COMMODORE PERRY'S SQUADRON SAILED

AMBASSADOR MORRIS AND AN OLD SAMURAI RETAINER OF THE TOKUGAWA SHOGUNATE

been constantly used to gain a great object he had succeeded in making a "Convention" with the Shogunate authorities which he considered a triumphant success; an agreement providing for the opening of Nagasaki to American ships; permanent residence for Americans at Shimoda and Hakodate; trial of accused Americans under American law; and right of travel for himself in all parts of the country. By implication he also obtained right for missionaries to reside in Japan. "Am I elated by this success? Not a whit."

June 17, 1857, the Convention was signed. And thereupon the American Representative pressed more persistently his demand to be escorted to Yedo, that he might deliver, in person, "to the Emperor," a letter he bore for him from the President of the United States. Repeated protest, excuse, delay and subterfuge followed. But he persisted; and Septembar 25, at last, possibly aided by the coming of the warship Portsmouth, Mr. Harris was informed that at Yedo, after many consultations, it had been settled that he was to go to Yedo in the most honorable manner"—"to have an audience with the Shogun;" and "then to present the letter of the President." From that day on until November 23, all the time was spent by all parties involved in a fitting preparation for the memorable event which to-day's most welcome visitors, the present American Ambassador and his friends, were celebrating.

In a few minutes after the landing of Mr. Morris and his party, they were on a small plateau beside Gyokusenji, where stand fine monuments erected by the American Government in memory of officers and men of the Perry Expedition who had died in the Far East. Four of these monuments were there before Mr. Harris had arrived.

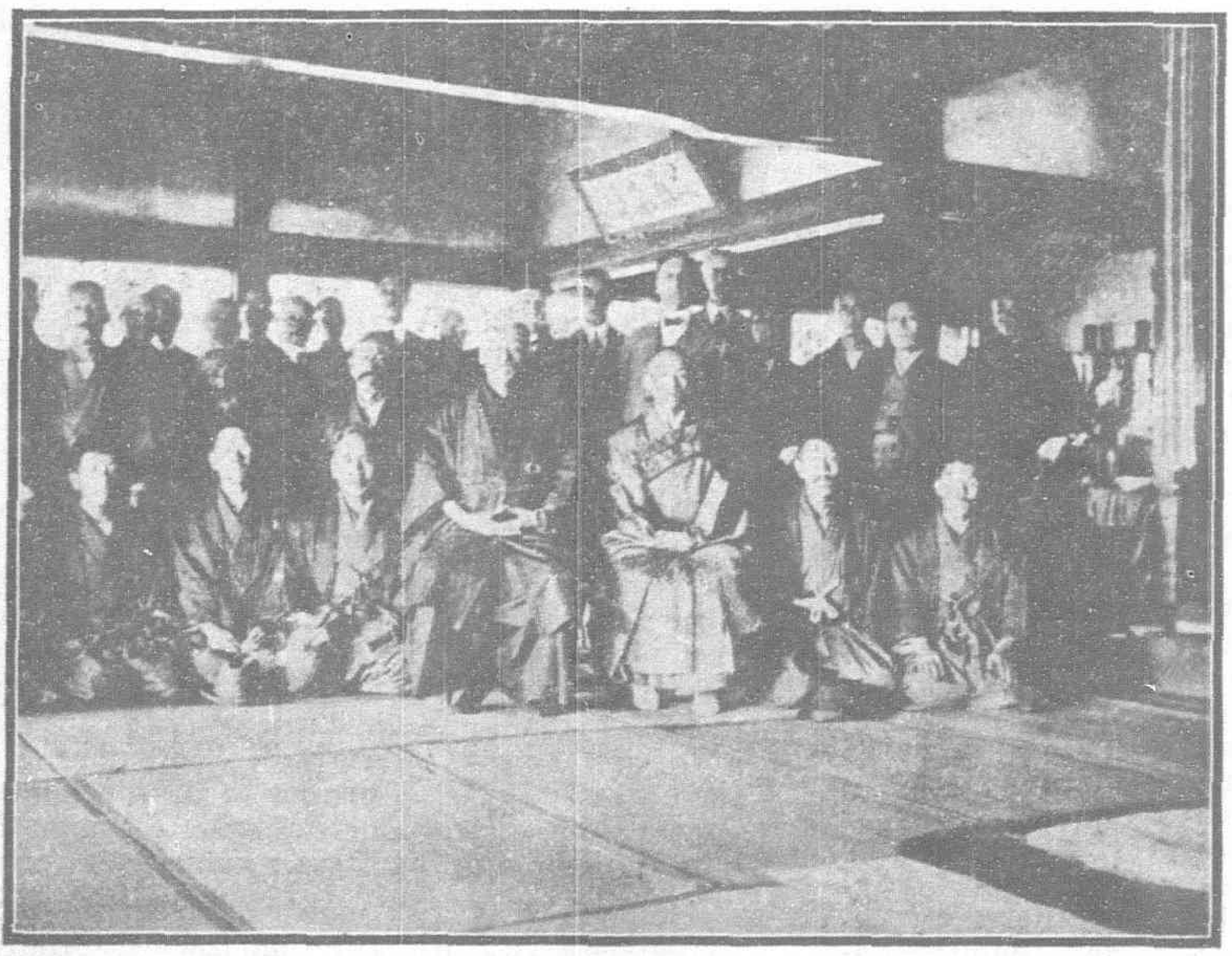
On Historic Ground

Our next move was into the temple, where special preparations for receiving the present Ambassador had been made.

Some relics of Mr. Harris, a glass goblet of the kind used in his day, and a strip of gold lace from the uniform of one of the Perry Expedition officers,—both most carefully preserved in neat receptacles—were shown to us, together with various prized written documents, much the worse for their age and usage. Our chairs had been placed in the part of the temple that Mr. Harris had used as an office, the ceiling still bearing the paper with which he had covered it to keep out down-blowing air drafts; and just beyond this room was a corridor in whose wall still lies the stone slab in which a hole had been cut for the Consul-General's stovepipe, probably the first convenience of the kind in Japan.

After a very genial, brief but graphic patriotic address by Mr. Morris, which was well interpreted for him by Mr. Henry Satoh, one of our party, who, as a Buddhist priest, had assisted this temple's priest in the special memorial ceremony for Mr. Harris; and after the taking of some commemorative photographs at the temple entrance, our party returned to the bay shore, to the picturesque rock on which now stands a shrine to the goddess Benten. Thence we went by our sampans to a landing in Shimoda not far from the Goyosho, the temple in which Mr. Harris had, for a year and more, carried on with steady persistence his trying negotiations with the Shogun's government. We were then received with punctilious care by a venerable priest, and shown some treasured relics of Mr. Harris's person and time.

Later at the hotel a pleasant episode came to Mr. Morris, as a visit from a picturesque looking old gentleman who wished to tell the Ambassador that he had seen Mr. Harris almost daily when he was at Kakizaki; that, in fact, when he himself was eighteen years old he had been a sort of supplier of vegetables, fruits, etc., for Mr. Harris's table, Of course, Mr. Morris was glad to welcome the old gentleman, and was much pleased to



ROOM IN TEMPLE WHERE TOWNSEND HARRIS LIVED DURING NEGOTIATIONS WITH THE SHOGUNATE

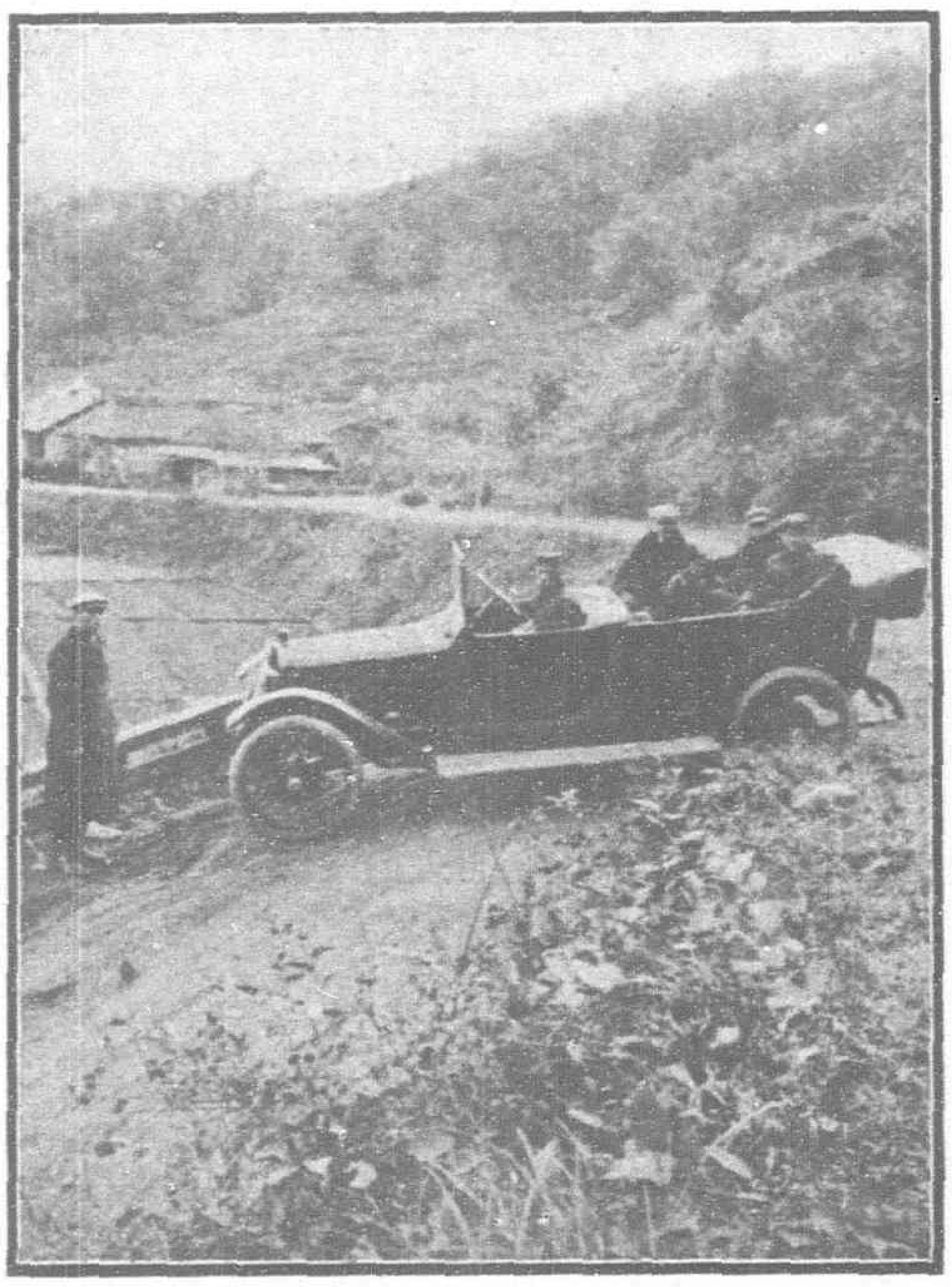
VILLAGE OFFICIALS GATHERED AT A TEAHOUSE IN SHIMODA TO GREET AMBASSADOR HARRIS AND PARTY receive from him a handsome walking stick that he had been carrying for many years.

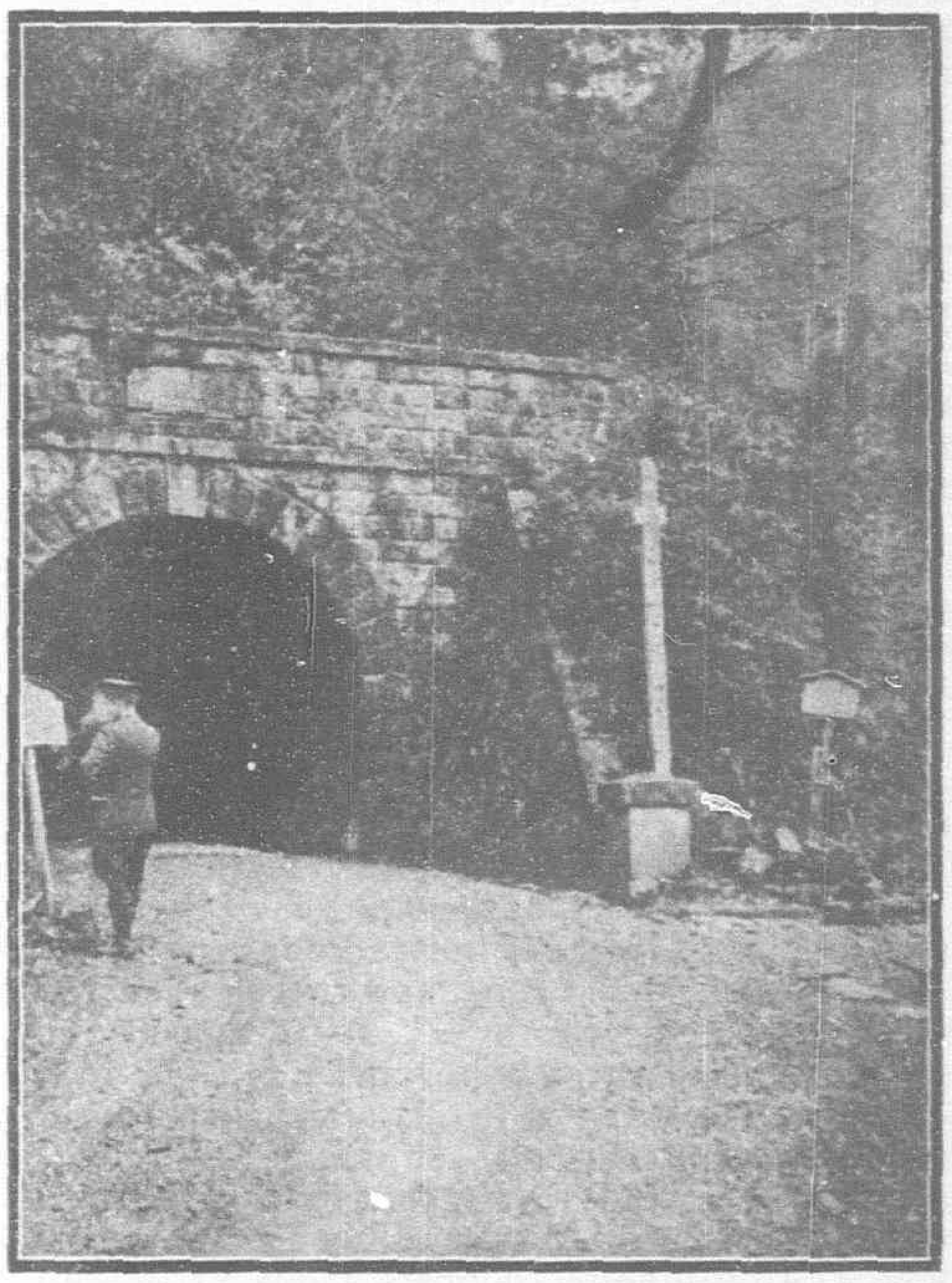
"Monday, November 23, 1857, at eight o'clock this morning I start on my journey to Yedo." This entry stands in the historic diary of the Hon. Townsend Harris then American Envoy to Japan.

On November 23, 1917, before noon the present American Ambassador to Japan, Hon. Roland S. Morris and his guests were well started on their return journey from Shimoda in memory of this momentous international event.

We were not "three hundred and fifty persons," preceded, "four hundred yards away," by lads waving bamboo rods, and crying continuously to the air and to the people who might have gathered at the roadside, " 'Shita-ni-iro,' that is, 'Sit down!' " Nor had we in front of us "bearers of the American flag" well guarded. Nor did we "follow on horseback, with guards" all about us, and have norimono or palanquins and "shoe-bearers" for us back of them. Nor had we stretching out behind us "a long retinue bearing packages containing our bedding, chairs, food, trunks, and packages containing presents;" nor was one "cook and his following" there;—yes! we had a cook, but he was in a motor car with us "following," and without an opportunity to use his skill by the way. Our party consisted of only seven persons, with but little luggage; all of us and our belongings being carried in three modern and very swift, motor cars. "The Vice-Governor of Shimoda and the mayor of Kakizaki," who had followed Mr. Harris "with their trains," had bidden good-by at the hotel and stayed in Shimoda.

Ambassador Harris and Old Man, Aged 82, Who Carried the Food Supplied to Townsend Harris at Shimoda


View on the Mountain Road Between Shimoda and Numadzu


Tunnel Entrance at the Top of the Amagi Mountain on the Way to Shimoda from Numadzu

We soon had left the town and were on the high road leading towards the north, now an excellent, wide, macadamized road, not the mere "foot or bridle path of some six to eight feet wide," "only practicable on foot or on horseback," over which Townsend Harris had to go. In about an hour we passed through Nashimoto, a village which Mr. Harris had taken a whole day to reach, and we made our first stop at its farther side, at the temple where the American envoy had had quarters for his first night en route. The diary of his traveling says truly that the "temple commands a most beautiful view of the hills and valley." It tells of his journey, that "bridges had been built over every stream, the pathway mended and all the bushes cut away so as to leave the path clear." These notes are almost incredible to one going over the same way to-day. A road splendidly engineered in its construction; lined by telegraph and telephone wires; laid out for smooth and swift passage by the modern motor car; and bridged by large, permanent structures of stone and iron, the contrast for us between Mr. Harris's diary and our experience was astounding.

Although we had climbed to an attitude of 2,500 feet and crossed the great Amagi mountain range, and gone far across the plains towards Numazu, we had covered a distance over which Mr. Harris had taken fully three days to go.

Mr. Harris wrote: "The path was very difficult; so much so that I was compelled to leave my horse and enter my norimono; and it was no easy matter to carry that, even with eight men bearing it, as the road was, sometimes, at an angle of thirty-five degrees, while the zig-zags were some of them not so long as the pole of my norimono, which is twenty-two feet long." But the motor car road of to-day passes by all the troubles of the old trail, that Mr. Harris had to meet. We saw the trail and we swiftly rose above it, and at length, without caring for the final scramble, over the mountain's crest, our road plunged directly through a long tunnel that opened for us a descending way on the north slope on which we swiftly passed down to the fertile fields that are spread over the plains there.

On our way downward we soon came again into sight of the ancient trail, and we followed it closely thenceforward. Just as with Mr. Harris, we had, at Yugashima, a view "grand beyond description of the mountain Fujiyama."

We kept it for long afterwards.

Few Changes in Sixty Years

From here onwards our own diary might well have taken, almost as its substitute, that of Mr. Harris, so little have fields, agriculture, houses, people, and customs been changed in sixty years. Telegraph poles, a railroad and the motor car highway are new, but the past still holds the farmers' work and ways, and the shapes of the village houses of that district. "The plain widened" as we sped towards the ancient great thoroughfare, the Tokaido.

"By three o'clock we were at Mishima" not, however, on the third day of our traveling, like the Harris procession, but very soon after our third hour of motor car speeding.

Mishima now has the look of a large and prosperous city, but Townsend Harris saw it as a town of about "nine hundred houses." We did not, like him, stop there for the night, but we did enter there, "the great road of Japan" bordered by "very noble cypress, pine, fir and camphor trees,"—the Tokaido, on which, with a short omission of distance over the Hakone pass, we were to retrace to Yedo, Townsend Harris's historic journey.

Over the Mountains

In Mishima, Mr. Harris made some quite pertinent reflections in his diary of the reluctant mood of the then Japanese Government to "accept the new situation" necessitated by the course of events." "The Idzu peninsula" he wrote "in which Shimoda lies, is one of the poorest provinces of the Empire. It is so mountainous that only a very small portion of it can be cultivated; and it has no resources to support any large population. The mountain of Amagi cuts off the rest of the world from Shimoda, except by a painful and troublesome journey over it. The Japanese showed their astuteness in getting Commodore Perry to accept Shimoda for the Americans, as they were completely isolated by land, and they could easily keep away any undue number of Japanese craft." But Townsend Harris had at last forced his way over the barrier of his seclusion, never to return to it, except to leave it permanently, and had fully begun the endeavor through which Japan became soon one in the fellowhood of the world's nations.

Our party's way of travel lay through Gotemba and over the new military road via Miyanoshita to the Tokaido at Yumoto on the farther side of the Hakone range. The distance to Miyanoshita was rapidly covered by us in the late afternoon. On the way we were favored by magnificent glimpses, among the clouds, of the "peerless mountain" Fuji, now snow-covered, also with far views over the superb scenery of the Gotemba valley.

It is needless to say much of the comfortable rest and refreshment our party had at Miyanoshita, for the second night of our travels. We had come in a half day four days in time of travel ahead of the Harris procession of sixty years ago, reckoning the hour of starting as the same for each party. With good reason, therefore, we sat together, eight of us, at dinner at the Fujiya Hotel, much gratified over the wonderful experiences we had had in our two days of absence from Tokyo. We were, besides the Ambassador, who is the Honorary President of the America-Japan Society, which is especially interested in such events as that celebrated by this visit to Shimoda, Mrs. Morris who had come from Tokyo to meet Mr. Morris and to enjoy the remainder of the return journey; two members of the Ambassador's official household, Mr. F.C. MacDonald and Mr. H. F. Hawley; Mr. E. W. Frazar, Secretary of the America-Japan Society, and Mr. H. Carew, a director of the Sale and Frazar Company; Mr. Henry Satow, a priest of the Zen sect of Buddhism, a journalist and an excellent interpreter for the Ambassador's various addresses by the way; and myself, an honorary vice president of the America-Japan Society, particularly interested in the course of events in the present new era of Japan in international relationships.

Harris's Experiences

The next morning, beautiful weather continuing, our party made an early start and speedily rejoined the Tokaido and Townsend Harris's memorable route. The diary notes, which Mr. Harris made from Odawara on, show by contrast, as not before, Japan's wonderful changes, brought about by the lapse of six decades. It is still true that "from Odawara to Fujisawa" the thoroughfare is "almost one continuous village" and "Fujiyama begins to improve in appearance as we recede from it;'' but Mr. Harris passed over an empty road, all travelers being kept from it where his procession appeared. The people in the villages were silent, kneeling and motionless as he went by; he was saluted by prostrations of the village authorities from place to place; all roads entering the Tokaido were "closed by ropes stretched across them; he was ferried over rivers. In five hours of continuous travel from Fujisawa, November 28, he arrived at Kanagawa to speak of it as "a flourishing town which must become a place of great importance whenever Yedo shall be opened to foreign commerce.''

The Harris procession that evening arrived at Kawasaki, and there the next day was spent at rest, and in preparation for entrance into Yedo on the morrow. "I now learn beyond doubt," he wrote, "that the solitude of the great road is caused by positive orders issued by the Government, prohibiting any travel over the road during my journey." Also then is the note: "I read the whole service for the first Sunday in Advent with Mr. Hensken as my clerk and congregation. It was beyond doubt the first time that ever a Christian service on the Sabbath was read audibly in this place, which is only thirteen miles from Yedo, and this, too, while the law punishing such an act with death is still in force."

It would make an interesting conclusion to the itinerary of the present day return from Shimoda to Tokyo, of the American Ambassador, to quote at length from Mr. Harris's diary and accompany the quotations by observations of things as they now are.

Entering Yedo

The entrance into Yedo from Shinagawa; the enormous number of people lining the streets for seven miles, to a depth of five feet on each side of the way; the passage of stockades at every hundred and twenty yards; the many two-sworded men, the "perfect order maintained from Shinagawa to my lodgings for seven miles;" "not a shout or cry" being heard, making for such a vast multitude "an appalling silence,''—all this record we must pass with with just this mere reference to it. In this manner this unprecedented intrusion from the outer world proceeded; the half-a-mile long procession passing over seven bridges, including Nippon Bashi whence "all distances are reckoned in this country;" and, last, crossing the outer moat of the "Castle,'' at the northwest, "my bearers started on a full run, rushed through a gateway, across a court, and ended by bearing me into the house, —doing the matter in the most honorable Japanese manner." "I was then warmly welcomed by my old friend the Prince of Shinano, who conducted me to my rooms."

This wonderful journey of Townsend Harris in 1857 here came to an end.

As far as to the entrance from Shinagawa into modern Tokyo the present American Ambassador to Japan with his quests had, on this sixtieth anniversary of the momentous event, retraced as a pleasure trip, under Twentieth Century conditions the tedious traveling of his predecessor.

Japan's Awakening

Once settled in Yedo Mr. Harris, despite all efforts to have him go elsewhere, there remained. Almost immediately after his momentous audience with the Shogun when the long held letter of the American President passed into possession of the Japanese Government, Mr. Harris set about the making of a treaty that should be, in practice, but an act of international justice and amity, but which really would mark a deep reaching revolution in the Empire. Many obstacles and delays to his effort arose, but on January 25, 1858, at two in the afternoon, "we fairly opened our negotiations," and then, through days and weeks of almost incredible trials of patience, of demand for great tact and wisdom, of hope and discouragement, the negotiations were carried until on the twenty-third day of February, 1858, when all the Commissioners had no more cause for refusal, and at five o'clock, the unprecedented treaty was signed and Japan had, in reality, entered the world's family of nations. The full and formal diplomatic course of action was not completed until July 29, 1858. This fact, however, does not minimize the decisive act in February.

In the after days, "with mighty squadrons, the British, French, and Russians came and made treaties, and these were followed by twenty nations; but the treaty negotiated by Townsend Harris is the basis of them all," so writes Dr. William E. Griffis, editor of the "Harris Diary," which has given so much interest to us who shared in the journey just made by Amdassador Morris, and has supplied us with materials for a bit of history which otherwise would be lost to human memory.

Russo-Japanese Secret Treaty

Remarkable Revelation Concerning Compact in Connection with China

The following "Kokusai" telegrams appeared in the Japan *Chronicle* of December 24:

Petrograd, Dec. 22.

The *Izvesda* publishes the alleged text of a secret Treaty, dated July 3rd, 1916, providing for the joint action of Russia and Japan to prevent any third country achieving political dominance in China.

The Treaty, which is signed by Baron Motono, Japanese Ambassador in Petrograd, and Mr. Sazonv, Russian Minister for Foreign Affairs, runs for five years and thereafter indefinitely, subject to abrogation at a year's notice on either party expressing a desire for such annulment.

Preamble

The Treaty stipulates that "this agreement shall remain absolutely secret to all except the High Contracting Parties." The opening statement says that it is designed to supplement and strengthen the secret Treaties of 1907, 1910, and 1912.

Article I

The First Article provides that the High Contracting Parties shall recognize that the interests of both demand the defense of China from political domination by any third Power whatsoever cherishing hostile intentions towards China or Japan; the High Contracting Parties therefore undertake that their relations shall at all times be based on full confidences between one another in order that they may conjointly take any action that circumstances necessitate, and they therefore enter upon relations based on full confidence in one another, in order that they may conjointly take any necessary steps to prevent the advent in China of any such state of affairs.

Article II

The Second Article provides that in the event, as a consequence of measures undertaken by mutual consent by Russia and Japan on the bases of the preceding Article, of any third Power, as foreseen in that Article, declaring war against either Russia or Japan, the other Contracting Party shall, on the first demand of its Ally come to its Ally's aid. And each of the High Contracting Parties binds itself not to make peace with common enemy without obtaining the agreement of its Ally thereto.

Article III

In the Third Article it is provided that the conditions under which either Contracting Party shall give armed assistance to the other, and the means whereby such assistance shall be expressed shall be fixed by the respective authorities of the High Contracting Parties.

Article IV

The Fourth Article provides that it must be especially kept in mind that neither Contracting Party considers itself obliged, in accordance with the Second Article of this Treaty, to give its Ally armed assistance unless each Contracting Party receives guarantees from its Allies (? Ally) that it will render armed assistance to the full extent necessitated by the seriousness of the possible conflict.

American Official Opinion

(*Mainichi-Chronicle Service*)

New York, Dec. 23.

Commenting on the so-called Secret Treaty between Russia and Japan, described in Petrograd dispatches, American officials consider the description as contemplating "joint armed demonstration against America and the British in the Far East not barred out by the text of the articles published." It is pointed out that there is the possibility of the Treaty referred to being a special convention concluded between Russia and Japan at about the same time as the so-called Secret Treaty.

It was generally assumed here that the Treaty contained some secret provisions for the sale to Russia of all the Manchurian railroads south of Harbin, the transfer to Japan of the rights of navigation on the Sungari River, and the extension of Japan's fishing rights off the Siberian coast.

(*The speculations of the Japanese Press at the time ran mostly on these lines.*)

It is said that it is improbable that the United States will make any effort to obtain a statement of the meaning and purpose of these secret articles from the principals, but it is expected that they will come forward voluntarily.

Washington, Dec. 23.

Officials here profess to have no knowledge of the Secret Treaty, and consider its authenticity improbable. The Government alone, they say, is in any position to make an effort to secure an explanation.

In view of the general expectation of a voluntary statement being probably forthcoming from the principals, a careful reading, meanwhile, of the articles of the Secret Treaty inclines officials to the opinion that the general purpose of the Secret Treaty is somewhat in line with the existing Anglo-Japanese Treaty of Alliance, and designed to protect China from exploitation by a third Power—neither Britain nor America being especially indicated as that Power.

The Convention of 1916

The Japan *Chronicle* says:—It is interesting to compare the alleged Secret Treaty with the Russo-Japanese Convention concluded on the same day. The Convention reads:

> Article I.—Japan will not be a party to any political arrangement or combination directed against Russia, nor will Russia be a party to any political arrangement or combination directed against Japan.
>
> Art. II.—In case of the territorial rights or special interest in the Far East of one of the Contracting Parties recognized as such by the other Contracting Party being menaced, Japan and Russia shall take concerted measures for mutual support or combined action in safeguarding and defending these rights and interests.

The Second Article of this Convention seems almost wide enough in its scope to render a Secret Treaty such as that now published in Russia unnecessary. At the same time it is general enough to need some particularization. According to the Secret Treaty the growth of any other dominating power than their own in China is regarded by both Japan and Russia as a menace to mutually recognized rights.

Article II of the Secret Treaty puts definitely what Article II of the Convention of the same date only implies—namely, that any country which, over a China dispute, declares war on Russia and Japan, will have to fight both. A curious point in this Article is that hostile intentions of any third Power towards Japan are to be equally a *casus belli* with Russia as hostile intentions towards China—a case of one-sided reciprocity, apparently. The No Separate Peace clause is clearly reminiscent of the Pact of London. Article III. seems to open the way to a possibility of either Contracting Party backing out of its obligations. Help is not, apparently, to be given unconditionally, but on terms, and in the manner deemed meet by the helper. Article IV (which has been somewhat mutilated in transmission) seems still further to lessen the rigidity of the obligation to give armed assistance, by obligation the Party demanding help to guarantee in its turn not to let its Ally down—a not unnecessary clause, as the past few months of war history have shown.

On the whole there is nothing in the Secret Treaty that offers internal evidence against its genuineness—unless it be that it contains so little that is not covered by the Convention. This definiteness on the subject of making war, however, the diplomatists consider it wise to keep out of published treaties—though there is a very strong body of opinion in all countries now against such secret pacts, which certainly seem potent only for making a small trouble into a great one.

The making of such a treaty as the published Convention was hailed last year as a remarkable event in itself, but if the Secret Treaty is verbally correct as published, there were treaties already in force, made 1907, 1910, and 1912. This is much more surprising, and unless the newly published Treaty is repudiated as a counterfeit, the Japanese public will require an explanation of the others.

At the time that the Convention was concluded there were numerous rumors that it was accompanied by a Secret Treaty, some papers declaring that the known was of much less importance than the unknown.

The *Jiji* gravely rebuked the rumormongers for publishing what must necessarily be to the detriment of Japan, since it would not otherwise have been kept secret. The *Mainichi* did not declare that there was a Secret Treaty, but promised the transfer of the Chinese Eastern Railway and the rights of navigating the Sungari in a supplementary memorandum. Something of this sort seemed to be the popular conception of a Secret Treaty, but the sanguine people who entertained such ideas were only partially satisfied by the purchase of a part of the Chinese Eastern Railway.

Mr. Nakashoji, a former Minister for Communications, remarked when the Convention was concluded, that it would probably "have the effect of satisfactorily solving the question pending between Japan and the United States." It is possible that it has done so, though not on quite the same lines as Mr. Nakashoji anticipated. The acceptance as genuine of the Secret Treaty does not support the idea that the United States was being warned off, for if this had been Japan's intention in the negotiations, she would have managed to get published the more definite promises of the Secret Treaty. On the contrary, the new Agreement between Japan and the United States is a reaffirmation of the integrity of China, and disposes of any surmise that China's rights were being disregarded by the Russo-Japanese Convention.

At the time of the conclusion of the Convention in July, 1916, it was remarked that, though it resembled in some respects the Anglo-Japanese Treaty of Alliance, a significant difference lay in the fact that in the Russo-Japanese instrument there was no mention of China's territorial integrity or of the "common interests of all Powers." The omissions are equally conspicuous in the Secret Treaty. The recent Agreement with the United States, however, does much to restore the balance, and, in combination with the Anglo-Japanese Alliance and the Franco-Japanese Agreement, makes impossible the partitioning of China, which the Treaties with Russia certainly do not preclude. Mr. Nakashoji, by the way, declared that both Britain and France approved of the Convention, but if the Secret Treaty exists in the terms reported, these two interested Powers were not consulted in a matter where the Russo-Japanese idea of special rights in China might be of wider scope than they approved.

From the nature of the case, China could not be consulted in regard to her views, or the Treaty would no longer have been secret. But China's right to feel hurt at not being consulted when her destinies are arranged for her is not lessened on the account. The Secret Treaty is only one of a long series of important agreements concerning China to which China has not been made a party.

The reports about the Secret Treaty (always presuming that the document now published is genuine) did not indicate any leakage of official secrets in Japan. They are rather to be ascribed to the Japanese papers trying to save face after giving such copious imaginary details of the Convention before it was published. It is a rather amusing recollection that Mr. Inukai complained that among the numerous imaginary clauses there was nothing about fishing rights! Both the Convention and the Secret Treaty are (except in the particular pointed out regarding threats to Japan), of a much more evenly reciprocal nature than the majority of Japanese critics seem able to understand.

RAILWAYS IN KOREA

The total length of railway lines open to traffic, passenger or freight, was 994 miles at the end of the fiscal year 1914, showing an increase of 23.8 miles as compared with the preceding fiscal year. This increase was principally due to the complete opening of the Keijo-Genzan Line. On examining operating results, the total train mileage is found to have been 3,461,716 miles, and the total traffic receipts, Y. 6,417,480 showing a decrease of 108,650 miles in mileage, but an increase of Y. 67,632 in receipts. Transportation traffic conducted during the fiscal year 1914, as compared with the preceding fiscal year, is shown in the table below.

Along with the various improvements made in the railway traffic and the progress in agricultural and industrial development, the railway account might reasonably be expected to augment annually as hitherto. But, as shown in the table below, this expectation was not realized in the fiscal year 1914, as most items of traffic showed a decrease, principally on account of the economic dullness occasioned by the European War. The total receipts from the railways for the fiscal year 1914 amounted to Y.7,734,260 (including passenger and freight receipts and other sources of income), a decrease of 1.5 per cent, as compared with the figures for the preceding fiscal year; while the total expenses incurred in operating the railways, including the expenses of the Railway Bureau, amounted to Y. 6,501,931, an increase of 3.5 per cent. Thus the net profits of the railways amounted to Y. 1,232,329, for the fiscal year under review, showing a decrease of 21.4 per cent as against the preceding fiscal year.

As to the capital account of the railways, the increase for 1914 was about Y. 7,634,117. Adding this amount to the capital brought forward from preceding years, the total capital reaches Y. 131,016,151.

Railway Construction

With the completed construction of the Keijo-Genzan Line, which was effected by August of 1914, the peninsula has railway lines aggregating nearly one thousand miles in length, embracing one trunk line starting from Fusan, the nearest port to Japan, and connecting with the Manchuria railway at its terminal on the Chinese frontier, and several branch lines connecting it with important seaports, viz. Jinsen (Chemulpo), Kunsan, Mokpo, Masampo, Chinnampo, and Genzan. As mentioned in the last Annual Report, the laying of a new railway in the northeastern part of the peninsula, to run through North and South Kankyo provinces by extending the Keijo-Genzan Line as far as the Chinese boundary, is planned, and the total length of this trunk line will measure 373.7 miles, reaching its terminus at Kainei, with a branch line of 5.3 miles connecting it with the port of Seishin. But the financial condition of the Government-General not being equal to meeting the expenditure involved, it was decided that parts of the railway running through North and South Kankyo provinces.

Description		1914—15	1913—14	Increase (+) or Decrease (−)
		Miles	*Miles*	*Miles*
Length of Lines Open to Traffic		994.0	970.2	+ 23.8
Total Train Mileage		3,461,716	3,570,366	− 108,650
Total Number of Passengers		4,768,251	4,995,441	− 227,190
		Kin	*Kin*	*Kin*
Total Amount of Luggage		14,547,076	13,659,700	+ 887,376
		Tons	*Tons*	*Tons*
Total Amount of Freight		1,386,614	1,388,915	− 2,301
		Yen	*Yen*	*Yen*
Total Receipts from Passengers		3,660,814	3,815,806	− 154,992
Total Receipts from Freight		2,756,666	2,534,042	+ 222 624
Total		6,417,480	6,349,848	+ 67,632
		Yen	*Yen*	*Yen*
Per Mile per Day	Average Receipts from Passengers	10.18	11.49	− 1.31
	Average Receipts from Freight.	7.66	7.62	+ 0.04
	Total Average Receipts	17.83	19.09	− 1.26

The Industrial Wealth of South China

The Future of Hongkong

BY C. A. MIDDLETON SMITH, M.SC., TAIKOO PROFESSOR OF ENGINEERING IN THE UNIVERSITY OF HONGKONG

Scientific men tell us that sixty years is but a small fraction in the length of the history of this planet, but it is practically the entire life of applied science in China. Sixty years ago there was no Suez Canal. There were no Far Eastern cables and no electric light or power, linotype machines, or railways east of India. The scientific aspects of health and the importance of public works in the tropics were then not appreciated. Japan had not made up her mind to pursue an industrial policy which has since made her a world Power. Sixty years ago the new steel age existed only in the imagination of Bessemer, and he would never have dared to prophesy one tenth of the world-wide changes made possible by his invention.

In order to appreciate the rapidity with which new inventions now spread, it is as well to remember that the motor car was not in use in Britain twenty years ago. Aëroplanes were almost universally considered impossible, and many people thought that such a suggestion as flying was profane. Wireless telegraphy was not in use; the discovery that electricity in motion permeates and constitutes every atom of the universe had not been proved and even the most learned scientists hardly dared to hope for such an amazingly simple solution of problems which baffled them.

The extraordinary progress made in one branch of industry will show the effect of new knowledge and the rapidity with which it spreads. Until 1906 all incandescent electric lamps used the carbon filament. In that year carbon was replaced by rare metals. In 1914 there was placed upon the market a new tungsten lamp, generally known as the half-watt lamp; it consumes about one seventh of the current required by a carbon filament lamp of equal power. In eight years inventors had enabled the householder to have the same illumination for one seventh the consumption of electricity. They had done something else. By improvements in the methods of power production they had reduced the quantity of coal necessary to produce a unit of the electricity used by the lamps. They are using half-watt lamps, sent from the factories of Great Britain, in South China to-day. The manufacture of aluminium, the new alloys, and especially the new steels have already made industry in Britain during the twentieth century very different from that of even the last decade of the century before.

The present state of South China, from the industrial point of view, resembles Britain at the close of the eighteenth century. Then Watt was sending the new steam engine into different parts of the country; now machinery is slowly penetrating the interior of South China. The rather clumsy engine invented by Watt was being used for pumping water from the mines; the Chinese have not yet used the power of steam to obtain the mineral wealth which awaits exploitation. They have, however, demanded electric light, and they have ocular demonstrations of the conversion of the heat energy of fuel into mechanical work. On the whole, however, South China, in industrial matters, lags behind the Britain of one hundred thirty years ago. All other countries have made great changes. The contrast between the Egypt, the India, the Straits Settlements, and the Japan of to-day with the places of even thirty years ago is remarkable. There are people living in Hongkong who will relate the great changes brought about by enterprise and applied science during the same period in this Colony.

The waves of progress have, however, only beaten against the shore of China and penetrated inland along a few rivers, leaving the great mass of the population unaffected. Yet each year the stream of foreign trade, the fertilizing influence of Western ideas, spreads over a larger area. No one can doubt that the next half century will witness changes in industrial China.

If modern industry grew rapidly in Britain, science demanded of her votaries much patience and labor before she would yield up the secrets of Nature. Slowly, and often at great self-sacrifice, the workers in laboratories accumulated knowledge; until now the chemist and the physicist offer to mankind sure foundations upon which to build up industry and health. In this age there are available myriads of appliances to multiply our energy and time. Experience has accumulated. China can obtain the experience and enterprise of experts upon technical processes in subjects unknown a few years ago. The knowledge won in other countries is here for the asking.

Every important invention connected with mechanical power, until the middle of the nineteenth century, originated in Britain. That country became not only the workshop of the world, but the home of its scientific and technical advisers, the nursery of the pioneers of modern civilization. The fact that it has maintained its premier position in the application of science to industry is of paramount importance in the world struggle which a man, untrained in science, but possessing great imagination, named "an engineer's war." It was not enough, however, for Britain to possess sons of inventive genius. Beneath the surface of the land were coal and iron, waiting to be mined in Britain as they are waiting in South China to-day. Coal and iron are the inanimate sources of the wealth of Britain as they will be the cause of the industrial regeneration of South China and the creation of new industries and wealth in Hongkong.

The Wealth of a Country

The material strength of any country consists of its man power, its surface products, and its mineral wealth. Nobody doubts the exceptional value of the man power of China for industrial work under modern conditions. The phenomenal development of the tin mines and rubber plantations of the Straits Settlements is sufficient proof of it; in Hongkong we have, as examples, the work in the local shipyards, road-making, and other public works such as the enormous masonry dam at Tytam-tuk. In the province of Kwangtung, in which Hongkong is geographically situated, there is a population of 32,000,000. The Cantonese have shown themselves adaptable, enterprising, and possessing great mechanical ability in such places as Penang, Singapore, Batavia, aud Hongkong. They have all of the personal attributes, except expert knowledge, for industrial successes.

When we consider the wealth of the surface products of South China, we see that again Nature has been kind. Rice, sugar, silk, tea, tobacco, bamboo, and many fruits and vegetables flourish. Intense as is the cultivation by the natives, it cannot be doubted that the production could be greatly extended by skilled cultivation. The industry of the farming population is wonderful, but they are ignorant of modern scientific methods. Any one who is acquainted with the manner in which Japan has reorganized her agricultural industry will appreciate what is possible in South China. The systematic control of water, to prevent famine and flood, will, when accomplished, greatly increase the productivity of the land. The passing of the tea industry from China to India and Ceylon is merely an example of the difference between ancient and modern methods of cultivation. Sixty years ago *there* was *not* a single pound of tea entering England that was not sent from China. In the short space of thirty years, India and Ceylon, by the application of modern knowledge to industry, practically captured the tea trade of China.

Some day China will adopt modern methods in forestry, and, deplorable as is the existing state of affairs, an encouraging sign is the interest taken in the subject by the Chinese themselves. It is not impossible that a timber industry may be created in South China, and Hongkong will reap some benefit. The rapidity with which certain trees grow in the rocky island of Hongkong demonstrates the suitability of the climate of South China for timber production. Other changes, however, will come first.

The Mineral Wealth

It was coal and iron under the soil that created industrial Britain, and it will be the coal and iron in China that will cause the great transformation of that country. Although coal is not yet mined, in any quantity, in the provinces near to Hongkong, yet China produces about 20,000,000 tons annually, and of this output more than half is anthracite. The development of the mineral wealth of China is the real solution of the internal political troubles of the country. Revolutions cease when mines are opened up, for it is against human nature for men to raise pinch-beck rebellions when they have full stomachs. It is a fact that in China the natives who live near any mining center are happy and prosperous.

South China is particularly interested in the Pinghsiang collieries and the Hanyang steel works, for when the Canton-Hankow Railway is completed the Pinghsiang coal will compete in the local market. At present the mines supply coal and excellent coke to the steel works. A great struggle of the future will be one between China and Japan for the coal market of the Chinese Pacific Coast. China is just now only at the beginning of her coal output, Japan must have nearly reached the limit of her maximum output. At present only two mines in China, both in the North, produce coal for export. They are the Fushun and the Kailan mines. The coal from the former is exported from Yinkow and Dalny and the port of the latter is Chinwangtao. Both are competing in the markets of South China. The Kailan Mining Administration is an object lesson of what can be done with the mineral wealth and labor of China when under expert European supervision and management. Despite the dull revolutionary present of political China, a bright industrial future is promised by the evidence of a concern like the K. M. A.

Kwangtung contains coal, iron, silver, copper, lead, tin, and other minerals. It contains also the immensely rich valley of the Si Kiang with its fertile delta. No other Chinese province has such a variety of manufactures. For many generations there has been an industrial, as well as an agricultural population of Kwangtung; all that is needed to transform completely and multiply a thousand-fold the industries of the province is mechancial power and mining.

The Open Sesame

From time to time news filters into Hongkong abont the minerals of South China. Tin is imported by the Colony. Last year (1916) the business in this commodity fell considerably, probably due to political unrest and high freights. The imports from Yunnan and Kwangsi amounted to about 3,000 tons and 1,000 tons, as compared with 7,000 and 1,000 tons in 1915. Only crude methods of mining are in use. The growth of the tin mining industry in the Straits Settlements gives us a glimpse of what the Chinese can do under good conditions.

Engineers and geologists relate stories about mineral wealth of which they have seen evidence in South China. Native merchants bring samples of ores to Hongkong. Periodically hopes are raised, locally, that the mines will be developed; and then, as is so often the case in China, nothing happens. It was similar, in the years gone by, with the opening of treaty ports, the reform of the Customs, the introduction of railways, and the reorganization of the Salt Gabelle. One day something will happen. Then coal and iron will sell in the Colony at a price which will tempt industry, so that the place will undergo the second phase of its great transformation, and the manufacturing Hongkong will employ much more capital and labor than the trading Hongkong.

The first phase, from the barren island to the emporium of the Far East, was possible because of three outstanding advantages over any possible rival. A combination of the Union Jack on the Peak, a protected and deep-water anchorage, and a unique geographical position made the Colony, in about sixty years, the port of call for more tonnage than any other port in the world. The size of the liners and the tramps will increase, and the harbor is big and deep enough to accommodate them. Railways and other improved means of communication will multiply the commerce, and the capacity of the godowns will grow. Manufacturing Hongkong will not harm, it will greatly benefit, shipping Hongkong. It is only necessary to open a commercial atlas to see that ships from most of the trade lanes of the world will always make Hongkong an objective. Its position relative to South China shows how much its future is bound up with the development of the natural resources of Kwangtung, Kwangsi, Yunnan, and perhaps also Szechwan. But cheap coal and iron will be the open sesame for industrial Hongkong.

The Shipbuilding Industry

The Colony has entered upon its manufacturing era, which seems to have commenced about twenty years ago. There were shipyards and repair shops before then, and perhaps the date mentioned above is a little late. To-day, despite the great disadvantage of carrying the coal hundreds, and the steel thousands, of miles, ocean-going steamers are being built locally. During the first seven months of 1917 four ships were launched from the Hongkong slips totaling 18,700 tons. It is probable that the various dockyards employ some 12,000 men; with cheap coal and iron the numbers would increase in an almost unbelievable manner. Under present conditions, nothing but the unthinkable event of the loss of the command of the seas by Britain can prevent the continued growth of the local shipbuilding establishments; but the possible production of large quantities of steel in Hongkong stimulates such a vision that even the phenomenal development of the shipyards on the Clyde and Tyne seems possible of eclipse. The inventions of Bessemer and Siemens flooded the world with cheap steel during the last quarter of the nineteenth century. A combination of local raw material, Chinese labor, and a British Colony may produce a result which will startle the world in the twentieth century. The *Autolycus*, built locally of imported steel, was 8,200 tons deadweight. In Britain the maximum before 1860 was 4,000 tons. In 1915 we had the *Aquitania* of 47,000 tons and the *Brittanic* of 40,000 tons. When it is likely to pay to build a *Brittanic* in Hongkong, the facilities can be provided, even though it were necessary to import the steel. With coal and iron from Kwangtung, Hongkong may yet be the largest shipbuilding center in the world, as she became the port with the largest tonnage.

The Successful Industries

The Colony not only builds ships, but makes cement, rope, refines sugar, and manufactures all sorts of things from glass to preserved ginger. The sugar refineries represent a great deal of capital, employ numerous workers, and provide freights for the steamers. The Taikoo sugar works is said to be the largest refinery that is under one roof in the world. The Chinese Sugar Refinery at East Point also produces large quantities of the marketable commodity. The local sugar works are another example of the advantages of Hongkong for modern industrial operations.

It is only eighteen years ago that the Green Island Cement Co. commenced work in the Colony. Any one who has been privileged to look over the works cannot fail to appreciate the valuable asset that such an establishment is to Hongkong. Cement, made locally, has been used on the enormous masonry dam now nearly completed at Tytam-tuk, and on many other important structures in the Colony. The extended use of reinforced concrete in building construction guarantees a demand for cement which will increase. There is, of course, competition, and it is possible to purchase, locally, brands of cement made in Japan and other places. For the sake of the prosperity of the Colony in general, and of shareholders in particular, we may hope that Green Island cement will increase in demand each year. The Company suffered a heavy blow a few months since (and many local people experienced a personal sorrow) owing to the fatal accident to the man who did so much to develop the industry. His scientific knowledge and great ability helped, not only the industrial concern whose interests he had so much at heart, but in the development of the Colony.

For thirty years Hongkong has manufactured ice; before then it was imported and stored. Nowadays we expect as "necessities" of our life in the tropics such accessories to our comfort as ice and electric fans. It is as well to be reminded that for more than half of the time of the British occupation such things were unknown.

It is only fair to mention two local industries which have failed, viz., the cotton mills and the flour mill. There is always an element of speculation in new undertakings. Some industries pay to their promoters enormous profits, others consume their capital. The experience of the two failures is not without its value to the Colony, much as we may sympathize with unfortunate shareholders.

Two important local industries are those concerned with the production of electricity. Few of the people who so easily turn on a switch to start up a fan or to light up a lamp have any idea of the difficulties of maintaining a continuous supply of current. The local conditions must add enormously to the burden of the anxieties and duties of the staff. The power station at Kowloon supplies electricity in bulk to the neighboring shipyard. Coal from Kwangtung will cheapen the supply of electric power, which, in turn, will stimulate local industries.

The Future of Kowloon

Owing to its geographical situation, Kowloon presents greater possibilities for new industries than does the island of Hongkong. It is not, of course, suggested that there are no sites left for factories and works on the island; indeed it is almost certain that for many years new enterprises will spring up on both sides of the harbor. The construction of the Taikoo Dockyard has shown what can be done in the face of great natural obstacles; it is not impossible that, at some future date, there will be other works near Aberdeen or Stanley. All of the signs point, however, to the selection of sites on the mainland. Let us suppose, for example, that an enterprising local syndicate determined to produce motor cars or aëroplanes for the Far East. In order to compete successfully with similar machines from America or Europe, it would be necessary to make a large number of them, and that fact will retard the appearance of an industry which is certain to come to Hongkong. But let us suppose that the demand for motor cars in China is sufficient to entice some speculative people to subscribe enough money for a factory. There can be no doubt that they would commence to build on the mainland. There are admirable shipping facilities, the railway terminus, and plenty of land. In modern industrial undertakings all over the world the policy of to-day is almost standardized. The factory is built as large as possible in order to increase the ratio of output to capital expenses. As much land for future extensions is secured as is within the limits of reason. It will be very hard to define the possible limits of modern industrial establishments when they commence to spring up near Kowloon.

Industry depends for its inception and extension upon capital, and one of the most significant movements in this Colony during the last twenty years has been connected with the new attitude of the Chinese towards modern industrial undertakings. It would be interesting to know how much of the capital, represented by property and the local shares, is held by the Chinese. They own most of the house property, and there is every reason to believe that they have found it a good investment. We know that they purchase shares, and it is certain that they possess every confidence in local companies.

A still most remarkable event has recently taken place, and it is improbable that its full significance is yet fully appreciated. A syndicate of wealthy local Chinese has been formed, and it is financing one of the most enterprising reclamation schemes of the Colony. If the work in Kowloon Bay is carried out on the scale which is planned, millions of dollars of Chinese capital will be invested in it. It is the Chinese who are supplying the money to build what will be almost a garden city; when completed it will, undoubtedly, attract more wealthy Chinese to the Colony. The advantages of security, modern houses, and a complete educational system on the British model, has already made Hongkong a lodestone to wealthy merchants and officials in other places. The new and admirably planned Chinese city in Kowloon Bay will prove an additional attraction.

If the scheme is a financial success, the effect upon the industrial life of the Colony will be remarkable. It will demonstrate to Chinese of the wealthy class that enterprise is not only rewarded, but handsomely rewarded. It will show them that experienced Europeans can multiply their money by using it as motive power for carrying out the ideas suggested by inventions and Western industry. It will be only natural that the well-to-do inhabitants of the new Kowloon City—what a contrast it will be to old Kowloon City!—will wish to invest their money in local industries. It is not altogether insignificant that, of the fourteen local shipbuilding establishments, ten are entirely financed by Chinese and that there are Chinese shareholders in one of the largest of the other dock companies. The two largest firms have secured a reputation, connection, and equipment, which will, with careful management, render them unassailable in the building of big ships in this Colony. They can afford to regard with indifference the smaller work, as the dimensions of the vessels that they build so rapidly increase. The effect upon the Chinese capitalist, however, will be important. He will argue that if it pays to build engines for steam launches, it may be profitable to manufacture electric lamps, engines for motor boats, and even to bring rubber from the

Straits in order to manufacture it into a marketable commodity in Hongkong.

There is no reason why the European should regard with anything but favor this lodestone attribute of Hongkong for Chinese capital. With enterprise, he should generally be able to take the initiative. It is an advantage to the Empire and to Hongkong to have wealthy Chinese residents. The prosperity of the individual is bound up with the prosperity of the Colony. Those men in the past who have developed Hongkong may have reaped a good financial harvest because of their enterprise and industry—let us hope that they have. They have certainly earned the gratitude of the community of the present day. Industry multiplies industry; a motor car works in Hongkong of comparatively small dimensions would employ technical skill, native labor, and material in its erection; it would need machine tools and other accessories from Britain for its equipment. It could only be managed by Europeans, whatever capital it employed. It would set in motion the wheels of industry; factories at home, ships on the sea, godowns in Hongkong, local expert knowledge and native labor—all of these things mean prosperity to the Colony and wealth for the Empire which will need every assistance to pay off the colossal war debts now accumulating.

Final Conclusions

Any one who has listened to the men who built up, from small beginnings, the colossal establishments in industrial Britain must hesitate to put any limitations upon the future of industrial Hongkong. New developments, such as bicycles, motor cars, and electrical apparatus, have attracted millions of pounds of capital, employing whole armies of workers, and caused villages to grow into towns, and small towns into cities, in Europe and America. Especially has that been the case when there has been available iron and coal. If there are also shipping facilities, as on the Tyne, the Clyde, and the Thames, the growth is more rapid. Greater London consists now of eight million people; most of them obtain their livelihood out of the myriad industries and the immense shipping trade. Manchester, Birmingham, and Coventry have grown in the last half century in a manner almost impossible to understand. The only thing that Hongkong lacks is the easily obtainable coal and iron. It has wonderful assets in its situation and cheap manual labor. It is almost as certain as each day's sunrise that the Colony will become a great center of industry. Let us hope that, without in any way hampering development, public opinion will insist that nothing is done to spoil the natural beauty of the Colony or to create whole districts of slums. If we must have such eyesores as smoky chimneys, let us at least limit them to one on the island and one on the mainland for the two electricity supply companies. We can insist that other users of power must take electricity or use gas or oil. The Germans have for three years demonstrated to the world how easy it is to use the secrets laboriously gained from nature to destroy even the things most beautiful. In Europe they have shattered magnificent buildings and noble ideas like glass; but in Asia they once planned Tsingtau. During the industrial growth of this Colony it is to be hoped that enterprise and new ideas will be encouraged and not received with jealousy and suspicion. Then, by the wisdom of its leading men of commerce and administrators, Hongkong and Kowloon will become more healthy, wealthy, and, let us hope, not less lovely,—a Far Eastern outpost of that British civilization for the preservation of which so many of our noblest and best have cheerfully given their lives. Because of our obligation to them, and because of those pioneers who fought against battle, murder, and sudden death in Hongkong in the early days, it is incumbent upon each of us to do his utmost to develop the general prosperity of the Colony.

WATER SUPPLY FOR THE PORT OF AMOY

The published minutes of the Kulangsu Municipal Council, for the international settlement on the island of Kulangsu, Amoy, indicate that that body is again taking up the important question of an adequate water supply for the island. It is learned that steps were taken some months ago by the Chinese Chamber of Commerce of Amoy in regard to an adequate water supply also for Amoy Island, says a report by United States Consul Clarence E. Gauss.

This question of water supply for the port of Amoy is one of considerable importance to both the Chinese and foreign communities, as they are at present dependent entirely upon surface wells, which have repeatedly gone dry, and water must be brought in small water boats from Chioh-be, about 17 miles from Amoy.

The native city of Amoy, with a population estimated at 114,000, and the international settlement of Kulangsu, with a foreign population of about 250 and a Chinese population of about 11,000, are both located on islands of the same name.

Both islands are rough and rugged; especially Amoy Island, where (according to Navy charts) there are hills in the chain lying south of the city as high as 550, 475, and 400 feet. Kulangsu, being a smaller island, and the foreign residences scattered over the hills, has one hill 287 ft. and one 198 ft., besides several smaller ones. Both islands are largely of granite formation.

In 1910 the Kulangsu Municipal Council decided to sink an artesian well on Kulangsu and a Japanese contractor undertook to sink a 1,800-foot 2-inch well. From December 19, 1910, to June 15, 1911, only 130 feet had been drilled, 50 feet were through solid flintlike rock. The equipment of the contractor was decidedly primitive, however. The attempt was abandoned.

It is stated that some months ago a British firm at Hongkong undertook a water survey of Amoy Island, but that no report was made on the possibilities. It would seem, however, that a reservoir system might be put in on Amoy Island, if not on Kulangsu. Both communities seem to have been lacking in expert advice and survey of the situation. It is believed that an opportunity might be presented for some one or more of the American engineering firms now in the Far East to provide a water supply system either for Kulangsu or Amoy or both.

INDIA CASTOR BEAN FOR THE PHILIPPINES

Desire to have an increased production of lubricating oils of highest quality has led manufacturers in the Philippines to see the advantages of milling tañgan-tañgan (*Recinus communis*) grown from the imported varieties. Several large plants for the production of castor oil in the Philippines are being installed, and it now behooves the agriculturist to investigate the possibilities of utilizing his land for the purpose of producing castor oil seeds. In all possible cases the Indian variety of castor should be planted. Bureau of Science analyses show that the seeds imported from India and grown in the Philippines give a high oil content.

The Philippine variety of castor bean has never been developed. The seeds are small and of comparatively low oil content. The Bureau of Science has just investigated samples of native and of the domestic Indian variety of castor oil seeds grown under cultivation in the Philippine Islands. The percentage of oil from the Indian variety grown in the Philippines is very much greater than that from the local variety. The Indian seeds average about 52 per cent of oil, whereas the native seeds contained only about 40 per cent. Each sample analyzed in the Bureau of Science had a moisture content of 7 per cent. The seeds of the Indian variety weigh 610 grams per liter or 46 kilograms per cavan. Those of the small variety weigh 570 grams per liter or 43 kilograms per cavan.

Basing the calculations upon these percentages of oil, and on a moisture basis of 7 per cent, there would be approximately 24 kilograms of oil from a cavan of seeds of the Indian variety and only 18 kilograms of oil from the small variety, an actual difference of 6 kilograms of oil per cavan. The uncultivated native variety of bean yields still less oil and often is as low as 38 per cent based on a 7 per cent moisture content.

Cultivation is simple and does not involve so much actual work as does the growing of other staple crops. When once established, the plants thrive with little care and attention, and returns are certain. The plant is immune to destructive plant diseases, and insect pests are few and not serious.

GOULD'S NEW PUMP

Gould's rotary oil pumps are especially designed for pumping compounds and oils to metal working machines. Two styles of oil rotaries are manufactured. One runs in either direction and is particularly adapted to screw machines and automatic machines that reverse. The other runs in one direction and is suitable for gear cutting machines, chucking machines, and, in general, any machine tool that operates in one direction. While one of the smallest and simplest pumps made, no type requires greater care and accuracy in construction. The utmost attention is given to the workmanship on Gould's rotary oil pumps, and their reputation for high efficiency and durability is largely due to this care in their manufacture. These pumps produce an even flow, and the power demand on the driver is steady.

The foot is made in two styles and can be swiveled about the pump to 360 degrees. With these two styles of feet and the adjustable feature, it is possible to locate these pumps on almost any style of machine tool. Both styles of pump are equipped with a relief valve and by-pass built in the cover. This feature enables the operator to control the amount of oil or cutting compound, and also protects the pump against any excess pressure that might be built up, owing to the closing of the oil pipe or valve. Attention is called particularly to the fact that the relief valve and by-pass are part of the pump and not accessories. The workmanship and material on these pumps is high grade, particular attention being given to the gears or cams. These are generated on a gear shaper and are of such a design as to give perfect rolling contact. Further information gladly furnished by Goulds Manufacturing Co., Seneca Falls, N.Y., U.S.A.

JAPANESE SILK TO AMERICA

The silk exports from Yokohama to America, between January 1 and October 10, amounted to Y.300,186,757. As compared with the corresponding period of 1916, this is an increase of about Y.100,000,000.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Ssupingkai-Chengchiatun Railway.—The following statement regarding the Ssupingkai-Chengchiatun Railway prepared for publication by Mr. J. Fujine, Chief Engineer, appeared in a recent issue of the Manchuria *Daily News*.

The Ssupingkai-Chengchiatun Railway starts at Ssupingkai, 366 miles north of Dairen, and runs westward for 55 miles over to Chengchiatun. It is of standard gauge. Surveys were commenced early in July last year. It was only last April that the earthwork and other preparatory work were begun and the rail laying work was finished in 8 months, the first through train reaching Chengchiatun Station on November 30th. The 85 pound rails were furnished by the Hanyang Foundry. For sleepers, red pine of North Manchuria was chiefly used. Each is 8 ft. 6 in. long, 9 in. wide, and 6 in. thick. The ballast was laid to the extent of 2 ft. in thickness. The principal points and crossings are of No. 12, but the rest belong to No. 8 class. The road bed is 18 ft. wide. All bridges are temporary affairs built of wood. The longest, crossing the Liao River, is 2,128 ft. in length. For stakes nothing but larch from the Yalu Forests was used, and for the remaining timbers red pine from Kirin and North Manchuria was pressed into service.

Along the line west of Ssupingkai, not a tree worth the name can be found, nor a piece of stone either. All had to be obtained from Ssupingkai. It was partly on this account that the bridges were constructed on a temporary plan, and the opening of traffic as early as possible was aimed at.

The stations are four in number excluding Ssupingkai, these being Pamiencheng, Fuchiatien, Sankiangkou, and Chengchiatun. They are located far apart, at one place a span of more than 17 miles being left. Intermediate stations will be established as occasion may require. In station equipment, signaling apparatus and other safety devices are given primary consideration. As for the buildings, the utmost simplicity has been observed, at Fuchiatien, a farmhouse standing in the station ground being converted into a station house. The signals and chief points and crossings are of similar patterns to those in use on the S. M. R. Lines.

For the terminal station at Ssupingkai, part of a building belonging to the S. M. R. Station has been rented, so as to facilitate the entraining and detraining of passengers. The passenger platform of the one railway lies adjacent to that of the other. Goods for shipment on the Ssupingkai-Chengchiatun Railway are handled at the freight office of the S. M. R. Railway on a coöperative understanding.

The rolling stock, comprising locomotives and passenger and goods cars, has been rented from the S. M. R. Co. at suitable rates. The S. M. R. Co. has expressed its willingness to supply what it can conveniently spare in the matter of rolling stock as traffic grows on the Ssupingkai-Chengchiatun Railway. As regards the opening of regular traffic, there is the necessity to agree in concrete terms with the S. M. R. Co. upon through transportation rates, etc., which formalities will take some time.

For the present, passenger and goods traffic is to be carried with the spare capacity of the construction trains to serve the convenience of the public pending the opening of regular traffic.

The railways in South Manchuria and Inner Mongolia expect something more than the actual passenger and goods receipts. They also aim at quickening the development of the natural resources of the district along the lines, redounding to ultimate profit to these lines.

It is considered remarkable that the Ssupingkai-Chengchiatun Railway, in the course of only a few weeks since the opening of traffic by means of construction trains, should have a daily average receipt of not less than Y.15 per mile, which is about as much as the returns for the Mukden-Antung Line a few years after its reconstruction on the standard gauge. This bespeaks the promising future of the Line, especially as there lies to the west a broad expanse of the fertile Mongolian plain to be tapped. There are many Japanese officials connected with the construction work, but this is only a temporary arrangement and by the time regular traffic is started, the railway will see only a small number of Japanese officials retained in the service outside the principal ones stipulated in the Sino-Japanese agreement. Preparatory to this, Chinese are being trained to their duties in the traffic department.

Car Shortage Starving Irkutsk.—A telegram from Irkutsk reports that a panic is prevailing in the grain market there due to the freight congestion which has increased sevenfold. The town is in a sad state, the population starving, owing to the shortage of railway cars.

Japan's Broad Gauge Problem.--Negotiations are now under way between the Imperial Government Railways and the Department of Finance with regard to the next fiscal year's program for a speedy reconstruction of the railways on standard gauge. The flotation of a railway bond issue which is now held as the only means to raise the necessary funds will, however, be attended with sundry difficulties in its bearings upon the Government's general financial program. The Seiyukai Party is expected to oppose the broad gauge program preferring the construction of new lines in project.

Indo-China and Yunnan Rail Traffic.—The Compagnie Française des Chemins de Fer de l'Indo-Chine et du Yunnan has supplied the following figures of its freight traffic which shows an increase of 15,637 tons as compared with 1915:

	1915	1916
Imports from Tonkin..	2,635 tons	2,193 tons
Imports transited through Tonkin...	..11,800 ,,	11,315 ,,
Exports to Tonkin ...	120 ,,	468 ,,
Exports transited through Tonkin...	..11,081 ,,	11,578 ,,
Local Yunnan traffic ...	42,577 ,,	59,276 ,,

6,177 railway cars, representing a tonnage of 68,060 tons, were entered and cleared during the year. There is very little difference between these figures and those of 1915, when 6,256 cars, of a tonnage of 69,150 tons, were entered and cleared. Railway traffic was interrupted from the end of July until November 3 by a tunnel collapsing on a freight train between Mengtsz and Hokow, which accounts for the slight decrease in railway cars, as shown above. The railway company gives the number of railway passengers carried within Yunnan as 729,493, as against 601,571 in 1915.

New Railways for Japan.—The Railway Council at an extraordinary meeting January 18, adopted in toto Baron Goto's project for the construction of 589 miles of cross-country railways in Japan to link the present trunk lines. The Council voted a special appropriation of nearly Y.92,000,000, which added to Y.125,000,000 previously appropriated, releases Y.217,000,000 during the next ten years for the construction of these new lines. In addition to the Y.242,000,000, which the present railway lines have standing to their credit in the form of appropriations already made for expenditure in improvements, the Council voted a special appropriation of Y.18,000,000, totaling Y.260,000,000 for improvements. Of this Y.18,000,000, somewhat over half is to provide for the rising cost of rolling stock, and Y.8,600,000 is to be expended in the widening of tunnels and in the widening of the space on the roadbed between the double tracks. This is done so that in the future, no physical obstacles will stand in the way of the installation of a broader gauge. The Council's action, combined with previous appropriation yet unspent, provides that an expenditure of Y.477,578,714 for building new railways and improving the present ones within the next ten years has been assured.

New lines to be built on the main island of Japan follow:

From Ichinoseki (a station between Sendai and Morioka), south to Kisennuma, a seaport, a distance of 31 miles, to be finished in 1924.

Takasaki (on the way to Karuizawa), north to Nagaoka, near Niigata and the Japan Sea, 95 miles, finished in 1927. When this line is built, the heavy traffic now passing through the Karuizawa tunnels will be greatly lightened, thus facilitating travel to Karuizawa.

Boshu line extension from Hojo to Matsuda, 8 miles, 1920. Matsuda is a sea bathing resort facing the Pacific, near the point rounded by boats from Seattle and Vancouver a short time before entering Yokohama harbor.

Gifu (near Nagoya), north to Takayama, 85 miles, 1927. In time this line will be extended up to Toyama, near the Japan Sea. This Gifu-Takayama line will give a railway to the mountainous province of Hida for the first time. Takayama, the capital of the province, is separated by hills and mountains from the nearest railway at present, 100 miles away. When this line is extended to Toyama in time, a short cut will be made between Nagoya and the Japan Sea.

Maidzuru (famous naval station near Tsuruga) north to Mineyama, 30 miles, 1923.

Okayama (on main line between Kobe and Miyajima), north to Yonago on the Japan Sea, 88 miles, 1926. From midway on this new Okayama-Yonago line, from Niimi station, a branch will be run eastward 40 miles to Tsuyama, also to be finished in 1926.

Hagi, west 43 miles to Kogushi, near Shimonoseki, to be finished in 1927.

On the Island of Shikoku, the fiercely contested line adopted will extend from Mannoji, south to Ikeda, 13 miles, and a new line from Saijo west to Matsuyama, 47 miles.

Along the western seashore of Kyushu, a new line will be built from Yatsushiro, south 68 miles to Sendai.

In regard to lines under construction at present, the Railway Council appropriated more money to hasten construction, so that the Murakami-Akita line at the northern end of the Japan Sea coast will be completed in 1924, two years earlier than scheduled; and a line in Kyushu along the eastern coast from Miyazaki to Sahegi will be completed in 1923, three years early.

Freight Cars of S. M. Ry.—The South Manchuria Railway Co. has now 3,100 freight cars including 215 fifty-ton coal cars, the remaining 2,550 cars being of 30 ton capacity. These cars are distributed to the different trade centers in proportion to the volume of business. In order to facilitate the through traffic between the Manchucia and Chosen Lines as a sequel to their recent amalgamation and because of lending cars for use on the Ssupingkai-Chengchiatun Railway, the construction of a great many new goods cars will have to be undertaken. In view of shortage of materials only 100 new goods cars can be built to reinforce the existing service during the current fiscal year. The replenishment program for goods cars will be completed during the next two years.

SHIPPING

Japanese Subsidies Continued.—Notwithstanding efforts on the part of Japanese shipping firms to decline to receive further annual subsidies the Japanese Government is ignoring all applications petitioning the Government to stop to further shipping bounties, and the Department of Communications has ordered the Nippon Yusen Kaisha, the Toyo Kisen Kaisha, and the Osaka Shosen Kaisha, Japan's three largest shipping firms, to receive the bounty. Details of the amount of the bounties and the name of the firms which have been ordered to receive it are:

European service to be maintained by the Nippon Yusen Kaisha semi-monthly with eleven ships, each of more than 5,500 tons and sailing at 14 knots an hour, making 26 round trips a year and for which the Government is ready to subsidize Y.1,689,850 in 1918 and Y.1,569,672 in 1919.

Puget Sound service to be operated by the Osaka Shosen Kaisha bi-monthly with six ships, each of more than 5,500 tons, sailing more than 14 knots an hour, making 26 round trips a year and for which the Government is willing to give Y.2,669,925 in 1918 and Y.2,509,187 in 1919.

San Francisco service to be maintained by the Toyo Kisen Kaisha four-weekly with three steamers each of 12,500 tons and sailing more than 18 knots an hour, making 14 round trips a year. Owing to the fact that this line competes with more than one other foreign line and for that reason the Government has refrained from announcing the exact amount of subsidy.

Pacific South American service line will be operated by the Toyo Kisen Kaisha bi-monthly with three ships, each of more than 6,000 tons, faster than 13 knots an hour, making 6 round trips for which the government will give annual subsidy of Y284,863 in 1918 and Y269,350 in 1919.

Australian service to be operated by the Nippon Yusen Kaisha monthly with three ships, each of more than 5,000 tons faster tnan 15 knots an hour, making 12 round trips a year, for which the Government will give Y.169,470 in 1918 and Y.188,497 in 1919.

Newchwang Shipping Returns.—The Newchwang shipping returns for 1917 from March 29th, on which date the port was reopened to navigation, to November 27th, on which date the last cargo-carrier left, give a total of 379 vessels with an aggregate gross tonnage of 297,323 in entries, showing a decrease of 99 vessels of 139,225 tons from the corresponding period of last year.

During last year Japanese vessels, which entered that port, totaled 192 with the aggregate gross tonnage of 205,241, which were increases of 76 vessels of 87,999 tons on the present year. The British steamers decreased to 81 vessels of 82,395 tons in contrast with 108 vessels of 122,131 tons for last year. In addition, three American ships (4,340 tons), one Norwegian (500 tons), and one Russian (1,200 tons) visited the port.

New Chinese Shipping Company.—Planning to develop trade relations between China and Australia, a number of leading Chinese merchants in and near Hongkong have established a steamship company with a capital of $2,000,000, according to advices received by the head office of the Nippon Yusen Kaisha from its branch in Hongkong. The new concern has already purchased a ship of 2,000 tons and negotiations are now under way to buy several other ships to be placed on this run. They will be put under the British flag. Owing to an unusually favorable trade between Australia and Japan, it is expected by the Nippon Yusen Kaisha that such a new enterprise will not adversely affect the shipping of Japan.

Japan's Merchant Fleet.—The Japanese merchant fleet comprised 2,144 steamers with 1,749,453 tons in all at the end of October, which was an increase of 6 ships with 25,700 tons over the preceding month. They were classified as under:

					No. of ships	Gross tonnages
Over	20	under	55	tons	726	21,043
,,	50	,,	100	,,	312	21,821
,,	100	,,	309	,,	310	39,691
,,	300	,,	500	,,	144	44,962
,,	500	,,	1,000	,,	184	132,438
,,	1,000	,,	2,000	,,	138	205,377
,,	2,000	,,	3,000	,,	128	313,357
,,	3,000	,,	4,000	,,	85	285,154
,,	4,000	,,	5,000	,,	34	151,854
,,	5,000	,,	6,000	,,	32	181,268
,,	6,000	,,	7,000	,,	17	110,340
,,	7,000	,,	8,000	,,	11	83,005
,,	8,000	,,	9,000	,,	1	8,150
,,	9,000	,,	10,000	,,	6	57,052
,,	10,000				6	71,901
					2,144	1,749,453

Shipbuilding in Japan.—According to the Department of Communications, the new steamers of 1,000 tons and upwards so far built at the different private dockyards in Japan during 1917 comprised 21 vessels with 112,250 tons at the Kawasaki Dockyard, 16 vessels with 61,000 tons at the Osaka Iron Works, and 69 vessels with 299,684 tons at the other 15 dockyards.

Shipbuilders Big Dividend.—The Ishikawajima Shipbuilding Yard Company of Japan has declared dividends of 35 per cent annum for the past six months, the figure being an increase of 12 per cent per annum over the previous term. Profits amounted to Y.1,164,160 during the latter half of the year.

Kobe Pier Co. Prospers.—The Kobe Pier Company has decided to pay a dividend of 100 per cent, 20 per cent representing the ordinary dividend and 80 per cent a special dividend in commemoration of the 35th anniversary of the Company's establishment. For the previous term the dividend was 30 per cent.

Chinese Shipping Co. in P. I.—The incorporation of a large transportation concern has been effected by several Chinese lumber merchants in the Philippines. The corporation will do business under the name of Singbe Transportation Company, and has an authorized capital of Pesos 300,000, all of which has been subscribed. The company will engage principally in interisland transportation of lumber and freight, and will put into service a steam schooner of 500 tons capacity.

Mitsubishi Workmen to France.—Fifteen workmen of high ability have been selected from among more than 10,000 workmen of the Mitsubishi Engineering and Dockyard Company of Nagasaki, one of Japan's two biggest shipbuilding yards, and are on their way to France to study shipbuilding, on the Kashima Maru of the Nippon Yusen Kaisha, the 16,500 ton ship, which they have built. Many more will be dispatched to France, England and America later and selections a e now being made of the next lot to go.

More Ships to Philippines.—The Philippines have been assured of nearly 40,000 tons of shipping, in addition to the 100,000 tons consisting of France steel sailing vessels previously promised, for the transportation of Philippine products exclusively to the Pacific ports of the United States. The rate fixed for sugar is $30 or Pesos 60 per ton. Rates on other products have not yet been fixed. The steamers will be operated by the Standard Oil Company.

Shipbuilding in Antung.—A company has recently been formed, with Mr. K. Fujita, President of the South Manchurian Bank in Mukden, as chairman of the committee, to establish a company in Antung, entitled the Yalu Shipbuilding Joint-Stock Company. The plan is meeting with great approval from the general public, and payment of the first installment of shares allotted will be completed by the 10th prox., while the general meeting of the establishment committee will be convened in Antung about the same time. The building of the office and hostels, as well as the works recently started, has already been all but completed, while the keel of a sailing vessel of 200 tons to be constructed by the company, has also been laid. By next spring, a few more vessels will also have been constructed. The undertaking by the company is looked on with favor by the Chosen Government-General, which is ready to give to it all the assistance in its power, and will shortly locate an expert in New Wiju for the benefit of the company. Mr. Fujikawa, Governor of North Pyongando, paid a visit to the yard some time ago, and gave encouragement. A Japanese contemporary in Antung, reports that the building of a sailing ship, 500 tons in capacity, the Houn Maru by name, recently in course of construction in a shipbuilding yard in Antung to the order of the Manchuria Steamship Company in Dairen, has been completed, launched, and towed to Dairen. She will be fitted out for coastwise navigation. During the cold season, when the Paiho near Tientsin is icebound, she will be placed on the service between Fusan and Osaka, but after the thaw she will be placed on the regular service between Antung and Tientsin. The company plans to construct two more such ships and launch them next spring.

Japanese Postal Savings Increase.—The Department of Communications reported that postal savings amounted on December 20 to Y.410,556,106 with 16,673,918 depositors. The figures of the preceding year were 14,724,566 in the number of depositors and Y.292,558,636 in amount, and the increase 2,000,000 in depositors and about Y.120,000,000 in amount. The gain in 20 days is 116,722 in the number of depositors and Y.4,977,191 in savings.

Nippon Yusen Kaisha Port Said Line.—At a recent conference of the board of directors of the Nippon Yusen Kaisha it was decided to dispatch two steamers to Port Said with merchandise bound for France and Italy. Carrying war supplies to the Japanese Navy now operating in the Mediterranean and also merchandise for France the Nippon Yusen Kaisha sent the Kamakura Maru and the Awa Maru to Marseilles some time ago. These ships returned home recently. Because of growing freight congestion from Japan to France and Italy the Nippon Yusen Kaisha will send the Kamakura Maru and the Tamba Maru with merchandise bound for France and Italy to Port Said, where the cargoes on these ships will be transshipped to other steamers going to France and Italy.

French Freighter Launched.—The S. S. Mechanicien Donzel, ordered by the Asano Shipbuilding Co. and bought by the Messageries Maritimes, was launched on December 16, at the Uraga Dockyard. She is a steel freighter of 8,200 tons gross, 445 ft. in length, 58 ft. in breadth, and 40 ft. in depth. This vessel is named after the heroic Mechanicien Donzel, of the M.M. liner Athos, which was torpedoed by an enemy submarine on 7th February last on her way to Marseilles from Yokohama.

MINES

Mining in Mengtsz in 1916.—All-round decrease are apparent, in tin and tin ore exports and dealers had to contend against a variety of disadvantages during 1916. The mining district of Kochiu became the centre of trouble in the spring and many of the mine owners were subsequently fined by the Yunnan Government for their share in the insurrection. Meanwhile the mines were denuded of workers, the summer rainfall failed, and, lastly, the rates of exchange on Hongkong, taking an unfavorable turn, further added to the calamities suffered by the merchants. In other minerals, such as antimony, zinc, and lead, very little trade was done during the first part of 1916. Export through Tonkin was prohibited, and merchants dealing in these articles had to apply for permission from the French Consul indirectly through one of the Allies' firms. Some Chinese firms ran into bankruptcy in this business, owing to the heavy decreases in price on the Hongkong market, a situation which was caused by the action of four foreign firms in Hongkong forming a monopoly of this trade and greatly lowering the prices. The price of antimony, for example, decreased from $1,400, to $300 a ton, and that of other metals almost in proportion.

Dutch East Indies Tin Mines.—C. W. A. Lely, mining engineer to the Billiton Company writing in "mine and quarry," says it is often supposed by the layman that Banka and Billiton tin is all alluvial. This is not so, however, for of recent years, with a diminishing output from the gravels, attention has been given to the lodes. The Tikoes mine was originally worked by Chinese tributers, who went to a depth of 90 ft. by open-cut, picking out the richest parts. Wolfram accompanies the cassiterite, and was first separated by hand-sorting, and afterward by a magnetic plant. The Billiton Company eventually took over the property and proceeded to develop at depth. A shaft was sunk in the granite country at a distance of 300 ft. from the open-cut, and it has reached a depth of 350 ft. Three levels have been opened, and about 6,000 ft. of development done. The ore-body has been proved to be of considerable extent. The tin and wolfram are found disseminated finely through greisen, and also in quartz lenses within the greisen. In the quartz the crystals of cassiterite and wolfram are much larger. The greisen ore averages 2½% metallic tin and 1% WO_3. The two classes of ore are treated in separate mills, the aggregate capacity of which is 200 tons per 24 hours. The shaft-sinking, development, and mining are done by Sullivan drills, various types of which are used for their special purposes.

New Tungsten Strike in Malaya.—A rich deposit of mixed wolfram tin ore was discovered recently near the village of Changloon, in Sungei Sintok says a correspondent of the *Mining Journal*. The discovery was made by Chinese, who were working for tin on some small adjoining leases. The discovery caused a rush, and as there were over twenty applications for the area the Kedah Government decided to put the property up for auction. Subsequently, the auction was withdrawn, and eventually an area of 3,000 furlongs was given to a local firm. The monthly output hitherto has been about 300 pikuls, but an increase to 800 pikuls is expected shortly. This rich discovery seems to be confined to this localized area. The ore occurs in quartz veins, but as no regular prospecting work has been done upon it no reliable idea can be formed as to its life.

Hydro-Electric Plant for Mines.—For the supply of electric current for the mining camp at Hidachi, the Kuhara Company has planned to build a large hydro-electric plant, taking advantage of the Ishioka River running through Ibaraki prefecture, on which is located the above mine. The volume of water is said to be 17 cubic feet per second, with horse-power amounting to 2,653. The power of the current is expected to be 1,460 kilowatts.

Yokohama Steel Co. Doubles Capital.—In order to extend its business to the manufacture of wires, nails, and bicycle, automobile, and riksha spokes, the Yokohama Steel Manufacturing Company has decided to increase its present capital of Y.1,000,000 to Y.2,000,000. Of the 20,000 new shares 16,000 shares are to be allotted to the old shareholders at the ratio of 8 to 10 of the old. The remaining number is to be left to the discretion of the directors.

Osaka Steel Co. Expanding.—The profits of the Osaka Cast Steel Company in the term just ended were 560 per cent, says a report from that city. The firm will increase its capital to Y.1,220,000. The net profits of Y.310,000 will go to pay up the remaining amount of the old shares and a part of the new. The shares will be allotted at a ratio of 4 to 6 of the old.

Mining Progress of Malaysia.—The year opened with the price of metallic tin at $85 per pikul, but by the end of March a figure of $100 per pikul had been recorded, during April the price was fairly constant in the neighborhood of $100, there was a further rise in May to $113, and the half year closed at $108. The satisfactory aspect of these prices, as regards the mining industry, is, however, somewhat discounted by increased cost of placing tin upon the market. The labor force at the commencement of the period under review numbered 139,143 men as compared with 164,457 in January, 1916, showing a decrease of 25,314. The immigration and emigration returns relative to Chinese labor indicate that the total number in the Federated Malay States increased by about 3,180 men between 1st January, 1916, and 1st January, 1917. It would appear from these figures that there was no serious shortage of labor of the description employed on mines.

The output of tin reduced to a metallic basis amounted to 19,752 tons, showing a decrease of 1,974 tons as compared with the corresponding period of 1916. The decrease need not be viewed as a serious aspect, especially as the output for the period under review approximates to that in the first half of 1911, a normal year, during the first six months of which the total was 20,789 tons. The winning of tin by means of bucket dredges has continued to be successfully prosecuted, and extensions of this method of working are contemplated. The production of gold amounted to 7,339 ounces as compared with 6,904 ounces for the similar period in 1916, showing a slight increase.

Coal to the amount of 72,837 tons was produced and sold by Malayan Collieries, Limited, as compared with 41,427 tons in the first six months of 1916, a satisfactory increase, though under normal conditions the output would have been much greater. The existence of a local coal supply has been of the utmost importance and assistance at a time when the supply of imported coal has, of necessity, been restricted. The half year under review has been prosperous, there has been no serious shortage of labor and though war-time restrictions have affected the supply of machinery, plant, and stores, no serious disability has been experienced, except with regard to Malayan Collieries, Limited, who were unable to increase their output to a greater extent.

COMMERCE

United States Trade with China and Japan.—The value of merchandise imported into the United States from China and Japan, and exported from the United States to those countries, from the year 1907 to 1916 inclusive, is given below in 1000's of gold dollars. These figures are from the official reports of the United States Government. The importance of the trade between China and the United States and between Japan and the United States, as well as their relative proportion, can be obtained from the table.

CHINA

Year Ending June 30	Exported from U.S.A.	Imported to U.S.A
1907	$25,705	$33,437
1908	22,344	26,020
1909	19,420	28,799
1910	16,321	29,990
1911	19,288	34,227
1912	24,361	29,573
1913	21,327	39,011
1914	24,699	39,383
1915	16,402	40,156
1916	25,131	71,655
	JAPAN	
1907	$38,770	$68,910
1908	41,432	68,107
1909	26,692	70,393
1910	21,959	66,399
1911	36,721	78,528
1912	53,478	80,607
1913	57,742	91,633
1914	51,205	107,356
1915	41,518	95,883
1916	74,470	141,644

Japan's India Trade.—Proposals have been made for increasing the Japanese tonnage on the Indian service and for extending the term of drafts for encouraging exports to India to help square the balance of trade between Japan and India. A further measure is now suggested, and that is the encouragement of the export of South Seas commodities, especially Java sugar to India. It is said that with this end in view the Japanese Government has already induced the Mitsui, Furukawa, and Suzuki firms to buy 350,000 tons of Java sugar. India used to import a large quantity from Java, but recently the import has greatly decreased owing to the scarcity of tonnage. As a result, the price of Java sugar has fallen sufficiently to make it remunerative for vessels to be sent from Japan to Java for the export of sugar to India. The price of the 350,000 tons bought for export to India by the three Japanese firms mentioned is estimated at Y. 52,000,000. When freight and other charges are taken into account, the total export price will be about Y. 55,000,000.

Japan's Trade for Eleven Months.—Japan's trade total for eleven months ending with November is Y. 1,443,942,000 for exports and Y. 905,266,000 for imports, the balance being Y. 538,676,000. Exports show an increase of Y. 451.878,000 over the same time of last year while there is a gain of Y.222,187,000 in imports. The net acquisition of gold during the eleven months is Y. 237,995,000.

Newchwang's Bean Cake and Coal Exports.—Bean cake shipped from the port of Newchwang since the reopening of the Liao last spring has amounted to 1,500,000 pieces, the principal consignors consisting of the M. B. K., the Koderas, the Towa Co., etc. Fushun Coal, which was exported from that port during the same period, totaled 13,700 tons showing a remarkable decrease of 46,300 tons from the corresponding period of last year.

Japan's Trade with Russia.—From January 1 to September 30 the value of exports from Japan to Russia amounted to Y.76.317,778 the figures showing a decrease of Y.24,640,503 as compared with the corresponding period of last year. The value of imports to Japan from Russia during the period under review amounted to Y.3,280,253 being an increase of Y.945.757 over the corresponding period of last year. The following table shows the value in yen of the principal exports since January 1:

Copper	...10,317,973
Brass	...10,719,512
Other Metals	... 8,905,712
Articles Sent by Parcels Post	8,836,864
Raw Silk	... 4,560,731
Medicines and Drugs ...	... 2,138,933
Boots and Shoes	... 1,557,949
Woolen Cloth	... 1,564,265

Bean Cake Trade of Antung.—The total annual outputs of bean cake at Antung are estimated at about 2,000,000 pieces. Up to last May the shipments for Japan were carried by the O. S. K. liners, but since the discontinuation of the regular service by the Company, the export product has had to be forwarded mainly by railway. At present eight goods cars, each capable of carrying 1,000 pieces, are being employed for the transportation of bean cake to Japan via Chosen. At a recent date, there were forty carloads still awaiting removal.

NEW BOOKS

Monumental Guidebooks of Eastern Asia

The fifth volume of the magnificent series of guidebooks entitled the *Official Guide Book of Eastern Asia* is now on sale. It is a guide to the East Indies, which include the Philippine Islands, French Indo-China, Siam, Malay Peninsula, and the Dutch East Indies, and it is produced in the strikingly efficient manner which has characterized the previous volumes, to wit, those on *Manchuria and Chosen*, *South West Japan*, *North East Japan*, and *China Proper*.

The series was compiled by officials of the Imperial Government Railways of Japan, and constitutes a monumental work. The mass of information which is embodied in each volume is amazing. The beautifully drawn maps in color—and there are scores of them—are worth the money charged for the books. And that being so what can be said of the material supplied about each country dealt with? It is invaluable to the man in a hurry, the man who wants to find facts at a glance. It constitutes a compendium unequaled for its size. To explain the reasons for the series we can do no better than quote the Editors, who, we should say before we go any further, deserve the warmest congratulations of all interested in the section of the world dealt with. Especially does Mr. Yoshio Kinoshita, Director of the Traffic Department of the Imperial Japanese Railways, deserve well of his country. He has been the mainspring in contributing another monument to Japanese thoroughness—and in handling data none can excel the Japanese.

In their brief history of the *Official Guide Book* the editors explain that "the lack of a general compendious guidebook on Eastern Asia has been a long-felt want. The numerous visitors from Europe or America, who come to these lands, attracted by the romantic scenery and the interesting life and manners of a people so distinct in civilization from their own, have their curiosity but half satisfied, owing to the lack of just such a guidebook. This has also prevented these eastern lands from being fully understood by the western peoples, with the result too often of grave misunderstandings between the East and the West.

"It was at the instance of Baron Goto, the then Minister of Communications and President of the Imperial Government Railways, that in 1908 a committee was appointed under the auspices of the Imperial Government Railways to formulate a plan for the compilation of official guidebooks on Eastern Asia. Several experts from among the members of the committee were repeatedly dispatched to Chosen (Korea), Manchuria, and China, as well as to the East Indies, with a view to prospecting and collecting material; and, based on their reports, there was drawn up a general scheme for the compilation of the guidebooks. A year later, that is, in the autumn of 1909, the Editorial Staff was appointed and began at once to sort materials and make plans for the making of maps, etc.; and it was only in the latter half of 1910 that the editors began producing manuscripts in Japanese, which were rendered into English as fast as they came out. At the same time the work of making maps and selecting illustrations went on. As each book was completed, it was printed at the Tokyo Tsukiji Type Foundry, till the fifth and last volume of the series was finally issued. The titles of the several volumes, their dates of issue, etc., are as follows:

No. of Volume		Title	Date of Issue	No. of Pages	No. of Maps	No. of Full-Page Illustrations	No. of Inserted Illustrations
1st	Vol.	Manchuria & Chosen	Oct., 1913	448	19	16	79
2d	Vol.	S. W. Japan	July, 1914	586	15	6	104
3d	Vol.	N. E. Japan	" "	497	25	6	64
4th	Vol.	China (Proper)	June, 1915	538	23	9	163
5th	Vol.	East Indies	April, 1917	549	26	6	57
		Total ...	... ...	2,618	108	43	467

"In order to issue these books in a handy form, they were made in the size of what is known in Japan as *Shi-roku-Kogata* (4¼ by 6¼ inches), roughly corresponding to the duodecimo size. Though these volumes are by no means imposing, they contain altogether 2,618 pages, which are closely printed in the brevier, with notes, in the nonpareil type, comprising, roughly speaking, one million three hundred thousand words. That it was no easy task to set all these correctly in type may be imagined, when it is remembered that interspersed with the English there are found innumerable words in Japanese, Chosen (Korean), Russian, Chinese, and Malay, besides others of numerous local dialects. If, added to this fact, it is remembered also that the editors had to make frequent revisions to meet changes in local conditions, the necessity for reading the proofs six or seven times in the case of most pages, and more than ten times in that of others, will be readily understood.

"The maps and plans contained in these books are based on the best available material and were prepared under considerable difficulty, being then engraved with great care on copper plates. The collotype and autotype illustrations were also executed with great care.

"In the initial stage of compilation, the work was directed by Mr. Nakashoji, Vice Minister of Communications, Mr. Furukawa, Vice President of the Imperial Government Railways, and others. In its later stages the entire work was placed under the immediate control of Mr. Y. Kinoshita, Director of the Traffic Department, with Mr. S. Mikami, Secretary, and Mr. D. Shono, Engineer, on the advisory committee. The actual work was carried on by Mr. Y. Tsurumi, Secretary, as editor-in-chief, and others on the staff. The work of translating into English was placed in charge of Mr. Tokiwo Yokoi, except the fifth volume, of which the greater part was translated by Mr. Shogoro Washio, while the English manuscripts were subsequently revised by Mr. C. F. Stephens. The proofs were read by members of the editorial staff."

While the editors acknowledge "shortcomings and imperfections," they are difficult of discovery by the average reader, and he will be satisfied that in possessing the various volumes he possesses more with regard to the history of the country treated upon and its social, political, commercial, and industrial development than he could elsewhere secure in works many times the bulk. Certainly nowhere else could he secure so complete a set of the maps of territories and plans of cities. The series should be on the bookshelf of every one interested in any way in Eastern Asia. They are invaluable.

A Guide to Peking and the Overland Route

Messrs. Thomas Cook and Sons, the well-known Tourist Agents, have taken one more step in their campaign to aid the traveler by publishing a new guidebook, "Peking and the Overland Route." Thos. Cook and Sons have made the lands and seas of the globe known to vast numbers of voyagers by the continuous expansion of their system of finger-posting the world. They do it by personally conducted tours and by guidebooks, and in both respects they do it thoroughly. "Follow the man from Cook's" is rapidly being supplanted by "Follow the book from Cook's"—and so efficient are the books for the tourist that most people who could afford the man are giving preference to the book. For one thing it can be packed in a pocket—and can be relied upon never to answer back or argue. In their guide to Peking they have followed their practice of employing a good writer to do the work, and the result is eminently satisfactory. It contains an interesting brief historical sketch of the capital, an abstract of the Chinese dynasties, some notes on the people of Peking, a short review of the famous Siege of the Legations, and full descriptions of all the places of interest, and the latter, if nothing else, makes the book valuable to all. Programs for sight-seeing, prices of vehicles, guides, etc., are all given, and in addition to the abundant and informing letterpress are many photographs, and several maps. Tientsin and places along the route across Manchuria and Korea are also described, and essential information in connexion with them is given. Those who know Peking and those who want to know that interesting city, and those who want to travel overland from Peking to Japan, will find the new guide of interest and value. It is sold at $2 Mexican currency, and is well printed, well bound, and well indexed.